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# The Stewarton Hive and it's Octagonal Processors

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An Anthology of  
Articles from  
'The British Bee  
Journal And Bee-  
Keeper's Adviser'

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## THE STEWARTON HIVE AND SYSTEM:

Discovering the Stewarton Hive

Vol I #1 May 1873, Pages 11-13

In the opening number of a periodical such as the present, it is befitting some notice should be taken of the hive and system, yielding most probably, the largest quantity, and decidedly the finest quality of honey comb which in this country passes into commerce. The stranger or tourist, visiting our western metropolis, Glasgow, is naturally attracted, more particularly if he has bees at home, to the exceedingly handsome octagon supers of dazzling pure honey comb, which in the season, meets his view in the windows of the Italian warehouse keepers. He cannot fail to be struck at the massiveness of the individual combs, their straightness and beautifully rounded finish, no bleeding severed attachments from the brood combs through the abominable central hole, as in the common straw skep, and entirely free from the discolouration caused by the heat emanating therefrom, pollen or bee bread, young grubs, and all such impurities. Each of the upturned boxes, covered with glass, kept in position with crimson paper, forming a border to the margin, and serving the double purpose of excluding the atmosphere and all dust, and acting as a foil to the purity of the honey comb. Should curiosity tempt him inside for a narrow scrutiny, he will find that the boxes are about four inches in depth and neatly dove tailed, with windows back and front, and that all of the seven combs are wrought to moveable bars kept in their place with half-inch brass screws, consequently it is optional what comb to choose, it can be removed without the smallest leakage or waste, a spare bar inserted, the slides (or moveable slips of wood working in grooves in the bars, and fitting the spaces between) run in, and the whole rendered air tight as before.

The present writer has a vivid recollection of the time, when treading the thorny path of his noviciate, being so attracted, and on stepping in the shop, and feasting his eyes on the display, priced a particularly fine box, and was told that it was a first prize one, and cheap at three guineas. At the close of the following season (a capital honey year) I again visited the same place, and on commenting on the groaning shelves, tier upon tier, I counted rows of supers, and was assured by the dealer, that his then stock of honey comb he valued at; £200, but could give no information as to the system of bee keeping yielding such results, farther than it was chiefly the product of one little plant, the white clover, and he drew his supply mainly from one county,

Ayrshire. I was previously familiar with the excellent milking qualities of the Ayrshire cow, and was naturally led to the conclusion that that county must surely be literally "a land flowing with milk and honey," and to explore this marvellous system, a tour the following season was daly determined upon, as a preliminary. Authority after authority on the bee was ransacked in vain on the Stewarton system, all were alike silent, next an appeal to my preceptor, a shrewd and most experienced bee keeper on the old straw hive school. My glowing description of the marvels I had - witnessed fell tamely on his ear. Have you seen them too I enquired? Oh, yes, with a shrug of his shoulder and a twinkle in his eye, "Yon's a sugar" was the reply with which I was staggered. Well, there might be a black sheep in a flock, but such wholesale rascality I could not give credit to. An introduction to a highly reputed scientific bee master in the neighbourhood of Glasgow, was next procured, and he was called for. Could he give any information as to the working of the Stewarton system I enquired? I was met with, "certainly not, he did not approve of it and had written it down. Had I seen his last article, &c., &c.?" The bar hive he employed I saw at a glance, was much too small for a Stewarton super to rest upon, both parties were evidently alike in the dark.

My projected trip was in due time carried out, and were I to detail all I saw and gleaned on my first and subsequent visits, my "Sunny memories" of Ayrshire would, however entertaining and instructive to the reader, land me in the same predicament as Mrs. Stowe, in drawing the veil too much from private life. Suffice it to say I found the Stewarton bee keepers were in the habit of procuring swarms from the earliest districts along the coast, hiving them at first singly, adding a second prime swarm when procurable, eight or ten days thereafter, and after comb building had been fairly started in the super, nadired with a third breeding box. I at first objected to the combining two swarms after this fashion, seeing in our locality such were worth a pound a piece. My objection was met with "Swarms hived singly did not generally yield anything, with them combined they were almost certain to give one, possibly a couple of supers, covering more than the cost of bees," and that the bee keeper had over and above a capital strong colony against the following season, was certainly sound reasoning.

The colonies were moved gradually inland, with the progressive advance of the white clover, till they had gleaned its latest blow at the very moor edge there despoiled of their flower honey harvest, and were then

transported across the intervening Frith of Clyde to the Island of Arran, to rifle the purple heath clad hills of their treasures, and if the season proved favourable, other supers were again filled, if not at least as much stored, as to tide the industrious little workers over the rigors of the coming winter. So many as 300 stocks I was assured the season before last were grouped around the little village of Lamlash alone.

Having procured a supply of Stewarton hives and set to work to carry out the valuable instructions so fraternally afforded me by the Ayrshire bee keepers, but with faint hope of much success, being located in a continuous "green cropping" district, altogether lacking their rich old pasture leas, while previously working the old straw hive on the swarming plan, I was far out distanced by others, in the less cultivated and older pasture neighbourhood nearer the moors, although I possessed one advantage, having an avenue of old limes and a sprinkling of venerable planes. Still 35 lbs. for tops and 22 lbs. for second swarms were as good weights as I could recollect of. However by a painstaking study of the Stewarton system, and after effecting certain improvements to be afterwards alluded to, and procuring through the enterprise of that most excellent and deeply deplored Apiarian, the late T. W. Woodbury, Esq., of Exeter, several stocks of the then newly-introduced Italian Alp Bee, and found after continuous experiment that the first cross between the yellow Italian princess and the drone of our old black aborgines, afforded a progeny for honey gathering qualities, much superior to the pure of either variety". I consequently deposed my sable monarchs, introduced and continued to keep up exclusively such at the head of all my depriving hives, and by these aids was enabled to put the feats of former competitors pretty much into the shade.

I had the satisfaction of a visit from my old preceptor, and after he had carefully scrutinised some octagon supers, which would vie with those he had in his inexperience too rashly put down to sugar syrup, and after trying the weights of some of my Stewarton colonies, from which they were taken, quickly drew forth his note book, and enquired the address of their maker, while I hazarded the remark, it was singular that such never required nor received a particle of sugar, while weak swarms and "beat outs" made such considerable inroads on our crush sugar cask.

As a few facts are at all times worth bushels of theory, I will, in conclusion draw these hurried notes to a close, by giving the harvest taken from my best Hybrid Italian Colony, in the good honey season of 1868, reserving, should our editor kindly grant the space, in the succeeding number, some details of the mode of manipulating the Stewarton hive in particular, with a glance at its origin, and possibly, too, some retrospect of the storifying system generally.

July	9-1	Octagon Super.....	23.5	
"	9-1	Octagon Super.....	22	
"	16-1	Octagon Super.....	21.5	
"	27-1	Octagon Super.....	23	
"	27-1	Octagon Super.....	21.75	
"	27-1	Octagon Super.....	19.75	
"	27-1	Octagon Super.....	19	
Aug.	1-1	Octagon Super.....	22.25	
Sept.	14-1	Octagon Super.....	12	
"	14-1	Octagon Super.....	10	
	---	-----		
		10 Octagon Supers, Gross..	194.75	
		DEDUCT		
		10 Supers, at 3lbs. each .....	30	lbs
		Net Super Honey.....	164.75	
Sept.	17—	Stock hive weighed gross ..	70.5	
		DEDUCT	lbs	
		Board and Stock Boxes .....	21.25	
		Bees' comb and pollen allow.....	9.25	
		Surplus honey in spring, suppose...	10 40.5	
		---	----	
		Net Body Honey.....	30 30	
			----	
		Total harvest.....	194.75	

This colony was not sent to the heather, or even moved from its site in the apiary, or the result might have been considerably increased. The honey harvest terminated in this quarter by the middle of August, otherwise I have no doubt the yield would have been a weight of upwards of 200 lbs. As it was, this was decidedly the finest harvest from one colony ever reaped by

A RENFREWSHIRE BEE KEEPER.

## THE STEWARTON HIVE AND SYSTEM:

Modifications to the Stewarton and

Combining of Swarms.

Vol I #2 June 1873, Pages 13-15

Extracts found in

The Stewarton Hive of the Busy Man

Appendix I

The Stewarton Hive, as the present writer first found it, consisted of three octagon breeding, or, as locally termed, body boxes, 14 inches wide, by 6 deep, each furnished with seven bars, 1 1/2 inches broad, the 1/2 spaces between, filled with moveable slides of wood, working in grooves in the bars, with a shuttered window back and front, handles to lift with, hooks to weigh with, and little buttons to prevent displacement. In the centre, across from side to side, was fixed a half inch square bit of wood to support the combs, the one or two supers, or honey boxes, were exactly alike, but only four inches deep, and without the cross stick, all neatly dove-tailed at the corners—the whole forming one hive, which is usually described as a "Stewarton Set."

My earliest acquaintanceship with bee keeping began, as will afterwards be alluded to, with moveable bars and the nicest calculations as to their distances apart, from centre to centre, were made, where our little favourites had ample space to work at their own sweet will; and every true student of nature must follow humbly in her wake. I had also a very great repugnance to the mode in which my new hives were divided. The broad, 1 1/2 inch wide bars of the supers were all right enough, and a capital idea, too, which I had never met within the "authorities," as the thicker and more massive the honey comb, the more striking its appearance; besides, the additional depth of the cells renders them unfitted for brood, should the Queen unfortunately find her way up at any time into them, and their extra shallowness, as honey boxes, is a similar preventative against their being so employed. While conducting most materially to the better classification of the honey harvested, the only fault I had to find with them was the fixity of the bars; the sprigs with which they were nailed I had at once withdrawn, and half-inch brass screws were substituted. But 1 1/2 inch wide bars for brood-comb in the breeding boxes was a manifest absurdity, and I had them removed, (saving the outermost at either side), as these in whatever description of hive employed, are invariably used for storing honey but condemned the other five, and in

their place fixed six bars 1 1/8 inches broad, with screws. I increased the depth of boxes from six to seven inches, (the latter being the depth of the square hives I had previously used) and I need not hint, but to the beginner, the desirability of keeping up, as much as possible, strict uniformity of dimensions in whatever description of hive employed, are the interchange of combs and other reasons. My present strong octagon stocks during the season are wrought with two 7-inch breeding boxes, and a 4-inch eke. Finding an entrance of five inches long by half an inch deep inadequate to vent the bees of such populous colonies at the height of the season, I opened a corresponding one in each of the octagonal divisions, on either side of the front one, with the very best results, from the increased freer egress and ingress thereby afforded to the teeming populations, besides the exhilarating effects of so much fresh air, caused a considerable saving of labour power in fanning, to be more beneficially employed in the storing of honey.

The general mode of manipulating the Stewarton Hive is to lash a couple of the breeding boxes together at the weighing hooks with cord, after the bars of the boxes had been duly furnished with comb, or embossed wax sheet, run in the sliding door of the upper, withdraw all the slides of the lower, and close the openings with the little pegs accompanying the boxes. With the free communication between, the two become, to all intents and purposes, one, and the bees may then be introduced—a prime swarm, of course. Some eight or ten days thereafter a second prime swarm, if procurable, is hived in the third breeding box, and at once set down close to the earlier one, and at dusk the last named is placed on the top of it. The lower of the two first boxes—now the central—has its door run in, and the slides of the lowest are removed and pegged as before. Should the evening prove chilly, a whiff of smoke may be administered to both, but this is generally considered quite unnecessary, as it is a well established fact that no bee leaves with a swarm till it has filled its honey bag, and the lower ascends with a most confiding hum, evidently firm believers in the old Scotch proverb—"Plenty freens when ye hae ocht."

Mr. Alfred Neighbour's useful treatise, the "Apiary"—if I remember on this point—teaches that the swarm to be added is first to be knocked out upon a table-cloth; the operator is to move the earlier swarm, in the two boxes, and set them on a couple of bricks till the bees have joined, and then it is to be carried back to its stand. Now, knocking out bees on a table-cloth at dusk, with probably a falling dew, is a questionable

proceeding at the best, and to so unite with a hive possessing the ingenious contrivance of the bar and slide of the Stewarton, most uncalled for. Suppose the operator be a novice, and after sundry thumpings on the straw skep, to get the bees thoroughly out upon the tablecloth, he hurries off for the other hive, and in his trepidation as he bears it along, which is not to be wondered at, one of the watchful guards administers a sharp sting, causing him to wince, and if the boxes are put the smallest degree off the balance, down comes the tender, soft combs, *en masse*, ere he may reach the cloth; or does he stand firm till then? and sets them down with anything like a sharp thud, a similar result follows; or if any of the straying bees are trod upon accidentally, and the war note once sounded, what a *melee* follows. Portions of the bees are apt to stray under the cloth and get chilled and lost, or a detachment might find its way up the operator's inexpressibles, and then what a kicking and rubbing will ensue. The great simplicity and facilities of uniting with the bars and slides induced me to order a quantity of these in lengths, along with the boxes, which I cut up and fitted to my other hives, and the reader would find the advantage of doing likewise.

But to return. The morning light reveals usually nothing but the surplus Queen dead on the floor board. The lowest box is then removed, and the entrance of the second again opened. Should any bees be clustering in the lowest, the removal can be postponed till the middle of the day, when the workers will be more abroad. The object of removing the

third box is to restrict the room so that the combined swarms may all the sooner complete comb building, and packing to the glass, and be thankful to press up into the super which has been placed thereon, fitted with guide comb. Communication between stock and super is afforded by drawing the outer slide on either side only. Should the weather be favourable and honey abound it is at once taken to ; if not, it is better

to run in the slides again and wait for a day or two, then under more favourable circumstances, make afresh trial, as it is a curious fact that bees often will swarm rather than accept a super open to them, and which they have previously rejected. Supposing, which is generally the case, the bees have taken possession, in a very few days white comb appears at the windows; then, and not till then, the third breeding box is placed as a nadir underneath all, its slides withdrawn, and pegged as at the union, and the door way of the central box closed once more. The colony may now be said to be fairly under weigh, and should favourable honey gathering

weather continue, a second honey box may be placed on the first, and all the slides of the first super withdrawn. To induce the bees all the more readily to take to the supers, I have found it of considerable advantage to run a strip of gummed paper round the juncture of the stock with the super as well as with it and succeeding ones, should it be

taken to, or if honey be plentiful, a second slide on either side of the top box may be withdrawn, at first either partially or wholly. This is a nice operation, dependent on the flow of honey, and the bee master must exercise his own discretion, so as, if possible, to prevent the incursions of Her Majesty into the super. The plan of admitting only the honey gatherers of the end combs to the supers, to the exclusion of the Queen, the nurses, and the pollen collectors of the centre, is a most ingenious, original, and indeed one of the most valuable features of the Stewarton System. A third and other supers may still be called for, and the additional super accommodation afforded, always uppermost, and in exceptional cases even additional breeding space by nadiring at bottom may be requisite, although the strong colony referred to in your last issue, was wrought with but eighteen inches breeding space, while filling *seven* honey boxes or

supers in various stages of progress. To get bees to take to supers at first, and to work in them steadily through the vicissitudes of temperature, it is indispensable that they be well wrapped up with some warm woollen stuff. I generally employ old crumb cloths for this purpose, four plies thick, and need I add that the Stewarton hive being formed of wood but 5/8 of an inch thick, it is of course requisite, and must have the protection of a bee house or shed from the direct rays of the sun, or better still, an outer octagon case, with a nicely bevelled roof, and an ornamental vase on top, forms a most ornamental adjunct of the apiary or garden.

So soon as the lowest super is seen sealed at the windows the attachments between it, and the stock and 2nd super, severed with a thread, had better be removed, the next -lowest taking its place and so on, till the end of the season. When all are removed, and slides re-introduced, then as cold weather sets in, and the lowest breeding box vacated, it too, is better taken away, the slides replaced, the mouth wrapped carefully up with paper to exclude moth and dust, and suspended in any cool, dry garret, till required the next season. To obviate the accumulation of moisture, in a glass observatory stock, working in a staircase window, I tried with great success, tine India or Cuba matting to



cover the slide spaces, and by the thorough ventilation thereby afforded, that colony successfully withstood 25' internal heat, as shewn by the inside thermometer, on the memorable Christmas Eve of the very severe winter of 1860 and 1861, and ever since I complete my wintering preparations by withdrawing all the slides from the topmost box, and tacking on an octagon of matting, bound round its edges to prevent rippling, and by these contrivances my little favourites come through the winter as dry and snug as in the most porous of straw skeps. The slides, of course, take the place of the matting again when breeding recommences with the advancing spring.

At first I procured my boxes from a party who advertised and sold them, but from alterations I wished made in their construction, I was obliged to correspond direct with Mr. James Allan, Cabinet Maker, Stewarton,

their maker, and I understand the Messrs. Craig, and Dr. Wylie turn out a good job, but personally know little or nothing of the manufacturers, my sole interest being to see I get good workmanship. One thing, however, I may mention, that our local tradesmen cannot make them to compete at Stewarton prices, and several I know, who are bee keepers themselves, actually order their boxes direct from Stewarton, instead of making the attempt at turning them out at the extreme low prices at which they are procurable there.

Having already trespassed too much on your valuable space, I must postpone my retrospective glance of storifying generally, and the origin and superiority of the. Stewarton in particular over other and older systems till next month.

A RENFREWSHIRE BEE KEEPER.

## THE STEWARTON HIVE AND SYSTEM:

The Origins of the Hive  
Vol I #3 July 1873, Pages 37-40

Before proceeding farther to discuss the above subject, I would seek to correct an error in your last issue, page 14, by which I was made to say that the observatory colony there alluded to, "Successfully withstood 25' degrees internal *heat*." Whereas frost was the word intended.

We Northerners awoke that particular morning, to find the thermometer placed in the comparative shelter of the parlour window, at the bracing point of one degree below zero, while that within the observatory registered seven degree; above it, or in other words 25 degrees frost. It was a most interesting study hourly to visit the study during the night, and listen to the roaring hum of my little favourites as they energetically fought to keep up the ever-falling temperature, and to compare it with the death-like silence which reigned in the morning, the beautiful vagueries from the easel of Jack Frost alone recording that life and death struggle. Although this was the greatest cold I am aware of bees having successfully withstood in this country, still they must cope with much severer frosts during Russian and Canadian winters, but the extreme dryness of these climates is greatly in their favour. It is not severe cold which proves so destructive in the wintering of bees with us, as the vicissitudes and humidity of the atmosphere of our Island home, causing the adoption of the ventilating plan for their healthful preservation, particularly in hives of wood or glass, imperative.

As a further improvement on the Stewarton hive I omitted to mention in my last contribution, that moveable bars speedily gave place to frames. My experience after several experiments, showing that such as were furnished with the latter, like the one alluded to in your last number, gave much superior results. This I can only account for on the supposition that the space between the ends of the frames and the box, afforded superior means of ventilation, and access for the workers to pass from box to box in frame over bar hives.

After once fairly experiencing the superior results attained from the Stewarton Hive and System, over others of which my authorities on the bee treated, it naturally occurred to me that as those writers seemed in total ignorance of such a system, that it had merely a local celebrity, and my curiosity was prompted to discover who was the inventor. It was perfectly clear there must have been some master-mind who designed it, and by his successful as well as profitable manipulation, had so convinced his neighbours of its superiority, as to induce plain working men (no easy task) to abandon their cheap old straw skeps, and invest their hard-earned savings in new and comparatively expensive wooden hives, and that they and theirs tenaciously clung to them ever after, was the best proof to my mind, of their superiority and profitableness, and as the discovery had not been made generally known, the discoverer was most probably one of themselves.

So far as I have been able to trace, the Stewarton Octagon Hive was invented in the year 1819, by the late

Robert Kerr, Cabinet Maker, Stewarton. He is described by olden Ayrshire bee keepers, who knew him well, as a most intelligent, upright man, besides being a particularly ingenious and neat handed tradesman, and the boxes he turned out were far superior to any to be had now-a-days. They were completed with so much care, that the slides of one fitted every other box with the greatest exactness: he was in addition, a most enthusiastic apiarian himself, so much so, as to Cause him to earn among his contemporaries, the sobriquet of "Bee Robin." Some of his sons, who had emigrated to America, returned to their native land, and persuaded the aged bee master to dispose of his property, and accompany them on their return to the land of their adoption about eighteen years ago, where he peacefully ended his days some two or three years since.

At the threshold of such an enquiry I am quite prepared to be told by Major Munn, or some of your well-read correspondents, that Octagon Hives and the Storifying System are by no means so modern an invention, and that for nearly two hundred years they have been in operation. I am well aware that John Geddie obtained a patent from King James II., for his Octagon Storified Hives. Neither was the invention that of Geddie's, as Moses Rusden, "an apothecary and bee master to the King's most Excellent Majesty," who granted and sold licences on behalf of Geddie and his partners, "to make and use the same," admits in the "Epistle Dedicatory " to his quaint old work on a "Full discovery of Bees", published in 1687, that the "Transparent Hives," first shewed to us by Dr. Wilkins, late Bishop of Chester, a most eminent member of your (Royal Society at Gresham College) Society, which have received several variations and improvements by one Geddie, and since by myself, &c." Although Rusden first saw the Transparent Octagon Hive (so called from the front and back windows to each) in the possession of Dr. Wilkins, he does not say he was the inventor, that individual's name I fear has been lost in the mists of antiquity, but should be deeply gratified if any of your contributors are able to throw any light on this interesting point.

But what more materially affects the present enquiry, was the Octagon Hive as introduced by Kerr into Ayrshire his own original idea? or had he seen or read anything of Geddie's Patent? I would rather incline to the supposition that he had, but as I cannot find the slightest vestige of proof, it is quite possible it may have been purely his own invention. That the same idea occurs to different minds at the same time, is a well-established fact, and I need not adduce a more pertinent

proof than that the moveable comb frame was invented in Germany by the well known pastor, Dzierzon, and on the American continent by Rev. L. L. Langstroth simultaneously without the slightest hint or communication, the one with the other, in fact they were mutually ignorant of each other's existence; and an additional claimant to that high honour is your excellent contributor, "A Lanarkshire bee keeper." In a letter before me he mentions he had frame hives in use twenty years ago, and a bee keeper near him possesses a hive 60 or 70 years old, with ribbed bars, forestalling the useful invention so well-known to bee keepers as the "Woodbury rib." Truly we may say with Solomon, "There is nothing new under the sun."

But supposing Kerr had seen Geddie's patent, it consisted simply of a series of octagon boxes of uniform depth, communicating by a five inch square central hole in each. Additional room was afforded by adding another box underneath, the upper being removed, as likely to contain most honey, which was necessarily a conglomeration of different mixed honey, pollen, and grubs, and with a pang of apparent regret, Rusden narrates, that these, upper breeding boxes were only presentable at the royal table, and to be inspected at his house in the "bowling alley" for a limited period, owing to the corrupting nature of their brooded contents.

As the crude steam engine of Newcomen existed before James Watt's day, and as the repairing of a model of that engine committed to his care, drew Watt's attention to the subject, and bringing his fertile brain to bear upon it, the happy thought of the separate condenser, and the numerous other improvements following in its wake, was called forth to make steam, the mighty power it has become, may not the Vale of Clyde claim for Robert Kerr, another son, although in a comparatively lowlier walk, the invention of the separate honey condenser, if I may apply the term to his shallow supers, the bar and slide, the combined prime swarms, and other ingenious contrivances, by which means bee keeping is revolutionized and results attained, during the short lived honey harvest of our northern chilly clime, of which the straw hivists of the sub-dividing swarming plan little dream.

No doubt from the shallowness of Kerr's breeding boxes, he would readily borrow a box of comb, to receive a second swarm, or beat out; or another weightier one to save a weak colony from starvation, and in our day with every individual comb moveable at command how pleasing a task it is at the autumnal or spring examination of stocks to draw the slides of our

octagon colonies, and exchange the over-loaded combs of the strong with the empty of the weak, either for brood or store, and thus readily equalize their strength, to keep the entire apiary in proper fettle without the smallest outlay for feeding. And yet despite these strides of progress, we have bee keepers such as Mr. Pettigrew, and those of his Manchester school, who from no other ostensible cause than possibly sympathy with that growing thirst after the gothic and antique, boldly argue that a roomy straw skep is the *ne plus ultra* for pure comb and successful bee keeping! My allusion in a former letter to how I knew the advantages of moveable combs from the commencement of my career as a bee keeper may be worth noting. Hearing of washing tubs full of honey comb, having been removed at the destruction of colonies of bees, established in the roof of an old mansion in our district, and a neighbour utilising a similar possession by getting a portion of the laths and plaster removed, and a board with buttons to keep it in its place substituted, it was with no little pride he would order his butler to cut out and set on his breakfast or dessert table, as the case might be, before admiring friends, honey comb, *warm* from the hive, the bees having been previously stupefied with tobacco smoke, but he always failed to induce them to work out from the spaces they occupied. To solve this problem, I had a couple of those in our roof similarly opened, and by shelving off the space immediately *below* the combs, compelled the bees to carry out their work horizontally into boxes open behind, with so much success, that the first season I harvested half a cwt. of most beautiful honey comb. Watching their proceedings through the front windows in boxes, I became deeply interested in my little tenants, and diligently read up the subject. But so situated, my apiarian operations; instead of being conducted during leafy June, in a balmy atmosphere, had of necessity to be carried out during mid-winter, either when "Boreas with his blasts did blow" most bitterly, or during the prevalence of keen frost. Then was my opportunity, and when well into the night, I wrought carefully, removing my bracketed shelves, and

in their stead substituted tier upon tier of moveable bar frames, but to fix in these properly was the difficulty. It made capital practice for the youthful apiarian. Stretched on my back, with upturned countenance, in uncomfortable proximity to the seething dark mass, which emitted an ominous angry buzz at every click of the screw driver, but beyond an odd dropper on the face to give an additional turn to the screw of courage, all went well, and the following season quite a haul of honey was reaped from my combined horizontal and perpendicular scheme. But unfortunately, although I carried the key of my lofty apiary, necessary operations during summer, set free a few workers now and again, and these somehow found their way out below the door, and complaints of soiled blinds followed. Then an irate maid was foolhardy enough to assault one of my poor little innocents with her banister brush, while peacefully winging its way, and rudely felled it to the ground, not killed but merely stunned, and was it to be wondered at that it was up and at her, closing her right eye? Then followed a report of a swollen knee, in short, by universal female suffrage, my indoor apiary was rated an out and out nuisance, and who could resist such odds? I was consequently obliged to indulge my growing passion by purchasing a couple of stocks from a weaver at the village, and fight it out in the garden, transferring the contents of his musty old skeps to my improved bar and frame hives.

It is a noteworthy fact that these runaway swarms invariably esconsed themselves in ours as well as our neighbour's roofs, in the portion having a *northern* aspect, whether with the view of enjoying a more thorough winter dormancy with a corresponding saving of store, or being cooler in hot summer weather I never could define, although from some necessary repairs to the southern portion we found that in very olden times they had been established there too, from the remains of stretches of combs, measuring from six to eight feet in length.

A RENFREWSHIRE BEE KEEPER.

## THE STEWARTON HIVE AND SYSTEM:

Supering

Vol I #4 August 1873 pages 54-55

The question has been asked, in last month's number, why I recommend "placing second and third supers always on top, one above the other, instead of keeping the empty one near the stock hive," and my

reply is, our industrious little favourites abhor a vacuum, and invariably display too good generalship to have so valuable a part of the commissariat without the lines. Placed as your querist puts it, experience has shown that on a break of good honey-gathering weather, bees in such circumstances frequently beat a retreat to the stock hive, carrying the contents of the super along with them, and every bee keeper must have

noticed, on removing a stopper from that objectionable central hole in a common straw skep, with what pains and what disadvantage they cautiously feel their way by building their combs, and raising them in an upward or backward manner, till they can attach them to the top of the super, before they, as it were, hoist their flag, and claim the added territory as all their own.

What would the workers of the manufacturer or store keeper think of being compelled to the additional labour of carrying their respective loads through a projected addition to the premises? no more would our workers relish it. It is a sound storifying rule that additional breeding space is invariably afforded by giving it to elongate such combs downwards, termed nadiring, in like manner, honey being always stored in greatest security, at the point furthest removed from the entrance, towards which the bees gradually contract their lines as cold sets in; consequently, additional space is given for this by an extension of room uppermost, termed supering. In both cases it must be continued as uninterruptedly and compactly as possible.

So managed, how beautifully and systematically does the work proceed, the greater weight as it ought to be at the base, the all but completed super comes first in order, which on removal, gives place to the next, well on for full too, the third possibly half filled, the fourth all combed, with yet but little honey, five and six as receptacles of the partially employed, who relieve the tedium of waiting by nibbling and reducing the thickness of the wax sheet guides, instead of, as in common straw skeps, hanging a mass outside, roasting in the morning sunshine, or be-draggled with the passing showers. With the rise of the temperature and the flow of honey, in such hives, bees expand like the mercury in the tube of a thermometer, and on its cessation shrink in, falling back on their base.

While drawing these remarks, under the above heading, to a close, I would like to recapitulate some of the advantages of the Stewarton to the practical bee keeper, over more vaunted and fanciful hives. First then as to form, all the best of the old writers on the subject are agreed that the nearest approach to a sphere (an Octagon) is the most suitable shape, and certainly in my experience I have found that in such, the heat is much better concentrated than in square hives, where it evidently must be weakened by being dissipated in the corners. In the latter I used always to be obliged to remove the outer combs to prevent mouldiness during winter.

Objection may be taken to the unequal length of the bars in the Stewarton, but as the shorter ones contain

chiefly honey, they are exchangeable of course, with all other octagons; the four central ones containing brood, I move about during the working season, among my square hives and nucleus boxes for Queen propagating purposes, with as much facility as if all were in square frame hives.

Then we have that ingenious contrivance, the slide. All the honey gatherers of the end combs are at once admitted into the supers, without in the least disturbing the Queen or train of nurses and pollen collectors of the central section, and by a like contrivance these honey gatherers pass from super to super, as if in reality in one box, and I have taken off four such supers at one lift, wherein the combs were constructed with such regularity, that an uninterrupted view could be had between all, saving a half inch variation on a single one. The shallowness of the supers, too, ensures the better classification of the honey with the progressive filling as alluded to above, ensuring the thorough completion of each, which enhances very much their pecuniary value.

To the man engaged in business, away from his apiary during the day, how pleasantly and profitably he can manage his bees, in Stewarton non-swarmed colonies, compared to the worry and annoyance caused by the watching for and loss of swarms, and the troublesome and expensive feeding, too often of such comparatively weak and profitless stocks. Colonies, when once fairly established, as a rule, rarely require the least feeding; indeed, they generally store both honey and pollen in the body of the hive in excess of their wants. The time required for adding a super or nadir in an evening or morning, is comparatively trifling, and on the Saturday half holiday how pleasant a task the removal of completed supers, and to watch the rush and delightful music emanating from such a throng as pour in and out from their triple entrances, to the comparative listless, ness of the odd droppers on the landing boards of the common straw skeps.

Here, too, we have that endlessly disputed point, which is the best size of hive? solved—how manifestly absurd is it to dogmatise, that one particular size is the correct thing, for every swarm, locality, season and Queen's production, whereas here is a hive, small, when it is invaluable, that every degree of warmth should be husbanded for the production and maturing of brood in the early cold spring months. "With the rising temperature and increasing population if swarms are not desired, but honey wished for, it is extended in keeping with the population that otherwise would have hived off, finds space for them, and as many more

swarms as the bee master chooses to add, and can meet the productive powers of the most prolific Queen that Alpine heights have ever given birth to. In short, in the hands of the practical apiarian, it is adaptable telescopic

fashion to exactly focus all seasons and districts be they good or bad.

A RENFREWSHIRE BEE KEEPER.

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To the Editor of the BRITISH BEE JOURNAL.

1st Challenge to the Origins of the Stewarton

Vol 1 #4 August 1873 pages 55-56

Sir,— I purposely put "Daniel or Thomas Wildman" in my first letter on the subject of having the really clever bee master of that name and period, whilst we leave the writers of such stuff as has been quoted in some periodicals, regarding "Daniel Wildman's performances near the "Three Hats at Islington." I now turn to the printed evidences of Thomas Wildman being the inventor and introducer of a divided hive, to enable him to get out the bees for his various exhibitions. In the annual register for the year 1768, amongst the projects, directions for the management of bees from Mr. Wildman's treatise are given, where he recommends straw hives so closely resembling the Stewarton Octagon Hive, that I fear Robert Kerr, mentioned in the able article by "A Renfrewshire Bee Keeper," may have to yield the invention to Thomas Wildman after all, but Wildman honestly adds that he now proposes to alter the bee practice in England, suggests the happy thought and fact that without any communication with the Count De la Bourdonnaye in Britany, he had hit upon the same plan as the Count. The wooden boxes with hexagon or octagon sides are merely adaptations to approach the circular straw hives, in which bees have thriven best under the worst management of the most fickle bee climate of England, the absorption of moisture, and the non-conducting qualities of straw being the cause of any success, with abundant harvests of bloom for the bees. My hives (adds Thomas Wildman) are seven inches in height, and ten inches in width, the sides are upright, the top and bottom of the same diameter. A hive holds nearly a peck, a hoop is fixed on the upper row of straw of about half an inch in breadth, to which are nailed five bars of deal, full a quarter of an inch in thickness, and one and a quarter in width, and half an inch asunder from one another, a narrow short bar is nailed at each side, half an inch distant from the bars next them, in order to fill up the remaining part of the circle, so that there are in all seven bars of deal, to which the bees fix their combs, a stick is suggested to be run directly across the bars, or at right angles to them. A flat cover of straw is secured

over the whole. An entrance is made at the bottom of each hive, four inches long in a piece of wood worked into the straw, (last round). Thus Mr. Thorley's (junr.) plan of standing three or four hives upon one another, is shown, surmounting these octagon boxes, and flat topped hives with bell glasses. These particulars are fully described also in Dr. Bevan's Honey Bee, page 310, &c. Each hive should stand singly on a broader board than the hive, and fixed on a single pedestal. The internal evidence of Thomas Wildman being the bee master, is still further proved in the second edition, 8vo., 1770, and the third edition, 8vo., 1778. In the treatise 4to. edition, chap. iii., page 79.. full directions are given how to pile on these hives. These dates and directions show Thomas Wildman as the practical and scientific bee master, whilst "Daniel Wildman" makes use of the name as far back as 1773, when the trade pamphlet is printed for the author, and sold by him at his Bee and Honey Warehouse, No.326, Holborn, price is. 6d. each! and that he is a mere impostor in bee knowledge, the 14th edition, 1799, page 46, proves. He gives his opinion "that the Queen Bee (so far from being the mother of all), breeds none but Queens, and that she herself copulates with the drones, as I have frequently (in the glass hives) observed many of the males attending her at the times of breeding, although at other times they seem to pay less respect to her than to the common bees." Chap. viii.! Such a bee keeper, although "a perfect Daniel," could not have performed on horseback! nor juggled the bees into the "Three Hats" at Islington on 2nd June, 1772, as has been stated. The editions at the British Museum and the quotations kindly given me by J. G. Desborough, Esq., of Stamford, from his valuable collection of bee authors, condemn "Daniel Wildman." "A great number of the hives may be seen in use, at any of my apiaries, he states in the 10th edition, 1792, but in the 4th edition, 1785, he adds at my apiary at Highgate Hill, or at any of my other apiaries, and that he always has one *mahogany hive*, with bees working in it, at his warehouse in town for the inspection of the curious!" From the evidence of the steel plates, as forgeries from Thomas Wildman, no one can for a moment doubt, as plate fig. 7, J. Mynde Sculp. "A comb, in which the worker bees are bred." A royal cell is suspended on one

side. Daniel gets his engraved by *Bart. de Rakkar* fecit, as well as John Lodge. Sculp. Plate ii., the *very lines* of the cell betray the copy, but oh ! the perfect copy of the three bees. Drone, Queen, and Worker! these certainly do not require the "anatomical entomological knowledge of the "Acute-Modern Reviewer" to detect the difference of a coxae of a leg! And the latter editions, 1801, printed by F. Jones, Fetter Lane. 15th edition, and 1812, printed by J. Shaw, 137, Fetter Lane, 19th edition, price 2S. 6d., contain amongst the plates a small group of bees as a swarm ! Here, then, I must

leave the tradesman, and hope to show in my next actually the hive arranged for Thomas Wildman's bees, and how he worked the separated and partitioned hives, from which we have the Madame Vicat Hive, and possibly from the History of the Hive recommended by M. Bonnet to Huber, but we must recollect we are dealing with experimental and not exclusively practical hives.

Yours &c.,  
W. Augustus Munn.

## THE STEWARTON HIVE AND SYSTEM:

2nd Challenge to the Origins of the Stewarton  
Vol I #5 September 1873 pages 75-77

Sir,—A Renfrewshire Bee Keeper, I think, makes a mistake in supposing that Robert Kerr, of Stewarton, invented the Stewarton hive in 1819, and Major Munn on page 55, is also mistaken in ascribing to Thomas Wildman the invention of the Stewarton hive; as Wildman's first edition was only published in 1768. I have nearly all the works of note that have been published on bees, and find that Moses Rusden, Bee Master to the Kings most excellent Majesty, in his work "A Further Discovery of Bees," published in 1679, (or eighty nine years before Wildman's book was printed) describes the Stewarton Hive, which he then used, and gives drawings of the same as now made, and uses the same argument two hundred years since, as a Renfrewshire Bee Keeper now does for having the boxes made with eight sides.

On page 81 Rusden says, "The form of my Hive is octagon, or eight square, which being near to roundness, is much better than to have them four square because the bees lying in a globulous body in the centre of the Hive, are thereby the nearer to the circumference in this form as well as in round hives, but in four square hives they would be more remote from the corners, and the consequence would be that the Honey in the corners would candy, and thereby become useless for the Bees in the Spring, which in this form is avoided by their propinquity to it, whose natural heat keeps the Honey from being candied or curdled in the Hive.

The height of the Hive is ten inches from the top to the bottom on the outside, and sixteen inches over from outside to outside with a sliding shutter to run easily in a grove in the middle of the top, backwards over the back window; this shutter is to cover an hole five inches

square in the middle of the top of the Hive, also in the hive are two large glass windowes, one before, the other behind, with doors to cover the glasses. And two handles on each side, one for lifting them up; also a frame in the inside, made fast with four pins for the Bees to fasten their combs upon." (This is an exact copy from Rusden's Book and the words as there spelt.) Is not this the first notice we have of a frame placed inside the hive for the bees to fasten their combs upon? One hundred and sixty years before Major Munn, in 1834, put a bar frame within a case or hive.

Rusden used three of these boxes when working for honey, one on the top of another, exactly the same as the modern Stewarton, and he found then as now, that the bees preferred as is their nature, to always carry their honey the farthest from the entrance into the top box, so Rusden put the empty box underneath the others and removed the top box as soon as it was filled with honey.

This is just the reverse of the Renfrewshire Bee Keeper's management: as on page 54 he says he places the second and third supers on the top, which from my experience I condemn, as the empty bar frame super should always be placed, with one empty comb in the centre for the bees to climb up, immediately over the stock box, as I find if there is not an empty space between the super and the stock box the bees will often swarm. The queen is also tempted to enter the super and spoil I all the beautiful white virgin combs by breeding in them, and also when the top super is filled with honey, and an empty super has been placed on it, I have found the bees follow their natural instinct and carry the honey out of the second super into the top one, as soon as the combs were built in which to deposit it.

A "Renfrewshire's" enquiry, page 54, "What would the workers of the manufacturer or store keeper think of being compelled to the additional labour of carrying

their respective loads through a projected addition to the premises? no more would our workers relish it." Now this is just Thomas Nutt's exploded idea, when he invented the Collateral system which has been a perfect failure, and I have seen hives that have cost some pounds, broken up for fire wood; Nutt's says in his work, "Humanity to Honey Bees" page 145, "Is it not inhumanity to force the bees to deposit their treasures in a garret, two or three stories high, when a far more convenient store room may be provided for them on the first floor?" and on page 148 he says "For a loaded bee the way through two or three boxes is neither short nor pleasant; it is a labyrinth beset with difficulties and obstructions, in surmounting which much of that time is occupied which would otherwise be more profitably, and we may suppose, far more agreeably employed in passing from flower to flower and in culling their various sweets. Any person, it may be presumed, would rather set down a heavy load on the ground floor than have to tug it up two or three long flights of stairs and through intricate winding passages, and be jostled and impeded and pushed about, and perhaps backwards every now and then, by countless crowds of busy men, unceasingly hurrying up and down and passing and

repassing the burdened man in every direction." Now this sort of reasoning sounds very true and nice, but the bees instinct gives the lie to it when applied to them. The bees, even the Ligurians, speak plain English, if people will only listen and look to see what they do. A clever bee master as a Renfrewshire Bee Keeper, knows very well that even in a common straw hive, the bees always carry the honey and deposit it in the cells at the top of the hive, the bottom part of the combs being either filled with brood or are empty. Do not the bees here speak plain enough, that they prefer to carry the honey the farthest from the entrance into the hive? " the garret and through all the difficult ways to it." And it really is not much loss of time, as it is astonishing how quickly a bee can pass through a crowd of bees into the top super and empty itself, as anyone can see them in a Unicomb Hive.

There is nothing in a Stewarton Hive that we do not obtain, and a very great deal more in an Improved Bar-frame Hive, which I contend settles that endless disputed question " which is the best Hive."

WILLIAM CARR,  
Newton Heath, near Manchester,  
August 11th, 1873.

## THE STEWARTON HIVE AND SYSTEM:

A Clarification of the Origins and Supering  
Vol I #6 October 1873 Pages 88-90

In the August number your courteous contributor, Major Munn, seemed disposed to award the palm to Thomas Wildman, as the inventor of the Octagon hive and non-swarmer plan of keeping bees in colonies, quite overlooking the priority of Geddie's patent, pointed out by me the month before. The oversight was so very apparent to any reader interested in the subject, that I did not think it worth while drawing his attention to it last month.

A correspondent, Mr. William Carr, of Manchester, has, however, assumed the duty of calling both the Major and myself to account in last number.

He commences his criticism by saying he thinks I am mistaken in supposing Robert Kerr, of Stewarton, invented the Stewarton hive in 1819. If Kerr did not invent the Stewarton hive, I shall be interested to be informed who did?

To prevent all such carping, I was careful to lay before your readers, at page 38, the antiquity of Octagon Colonies, and your correspondent, in his copious quotations from Moses Rusden's work, fails to

adduce the smallest glimmering of information on the point at issue, while he totally ignores the fact that I had previously given that author his due place in connection with the Octagon hive.

John Geddie obtained his patent for behoof of self and partners, on 23rd April, 1675, and in his work published in the same year now before me, entitled, "A new discovery of an excellent method of Bee Houses and Colonies," states he had experience of octagon hives for seven years previously, and although styling himself " Gentleman Inventor," he rather disingenuously leads his readers to infer the octagon hive was exclusively his own invention, dating from the year 1668, but Moses Rusden, the apothecary, who sold licences for Geddie's patent, and may have been one of his partners, in the edition I possess of his work, published in 1687, with straightforward honesty in the epistle dedicatory says, and it is so apropos, I quote the passage verbatim, "And we shall now find their qualities and their works, better discovered, and demonstrated by the transparent hive first shewed to us by Dr. Wilkins, late Bishop of Chester, a most eminent member of your society, (Royal Society at Gresham Colledge) which have since received several variations

and improvements by one Geddie, and since by myself." This clearly establishes the fact that there were octagon Storified Colonies in existence years before Geddie obtained his patent, or Rusden sold a licence. Whether Dr. Wilkins was the original inventor or had procured his hives from someone else, remains a mystery. When next Mr. Carr takes up his pen to enlighten your readers, as to the origin of Storifying, his researches must ante date 1668.

In your July number I have already endeavoured to show that Robert Kerr invented the hive known as the Stewarton, in 1819, whether the idea of keeping bees in Octagon Colonies, originated in Kerr's mind or that he had seen or read anything of Geddie's earlier patent, I have been unable to trace, but rather lean to the supposition, that Kerr, like Watt, with Newcomen's Engine, had brought his nice mechanical skill and thorough acquaintanceship with bee keeping to entirely remodel the rude original. Your readers must bear in mind that Geddie's patent boxes were simply of Octagon form, with a central five inch hole merely for communication, that the inmates were kept from swarming by nadiring with an empty box as required below, and the removal of the uppermost as likely to contain most honey; the contents of which being necessarily similar to those of a common straw skep, as I have already pointed out, a conglomeration of mixed honey, pollen, young bees, and grubs in all stages, which Rusden did not fail to deplore, as if kept over any time for exhibition, it got into a state of corruption.

To induce the bee to store pure virgin honey in distinct and separate compartments of the hive was Kerr's happy conception, and by his most ingenious contrivance of the bar and slide, so facilitated communication between the several boxes composing the colony, as to render them to all intents and purposes one, while he, by the like contrivance, shut off the queen nurses and pollen collectors of the central breeding position from the honey department.

Your correspondent passes from the origin of storifying, to the manipulation of the Stewarton Hive in particular, and very possibly from lack of acquaintanceship with his subject, confounds two distinct operations together, nadiring and supering, setting faith on no better data than because Rusden, some two hundred years ago, *nadired* his boxes after a particular fashion, consequently apiarians of our day should *super* theirs, and although his plan is contrary to all experience of good management, yet our practice he calmly "condemns." Unfortunately for the comparison Rusden had no supers to employ but his upper breeding

box, which had to do duty so far for one. Had he (Rusden) manipulated agreeably to your correspondent's theory "when working for honey" he would have set the empty box added, between it and the lower, as he (Mr. Carr) says, "I find if there is not an empty space between the super and the stock box, the bees will often swarm." Rusden, however, knew too well the evil effects arising from creating vacuums in bee colonies.

Your correspondent states that by the mode of supering, I recommend "The Queen is also tempted to enter the super, and spoil all the beautiful white virgin combs by breeding in them." Certainly this is most likely to happen by his mode, not mine, he keeps the empty comb next the stock hive, and the moment the queen passes from the breeding boxes she meets the very thing she is in quest of, empty comb in abundance, and she rapidly deposits an egg in every vacant cell, and the honey results of the season are lost, whereas by the usual mode of manipulation with the honey in lowest boxes in close proximity to and in fact but a continuation of what is stored in top of stock hive, the queen passes into the super and perambulates the lower box in vain for an empty cell into which to deposit an egg, and discovering her mistake, she speedily retraces her steps. Confirmatory of this view in my strong Stewarton colonies I have never yet once found brood in a super, whereas, in the days of my noviciate, when working with eked supers, over central holed straw skeps, alas! it was, unfortunately, too common an occurrence.

Mr. Carr ridicules the idea of extra labour being incurred by bees being compelled to carry their loads and shove their way up through projected additions to their domiciles, still whatever loss of time and unnecessary physical exertion is thereby entailed by every honey gatherer, as a sequence, must inevitably deprive their owner of just so much honey at the season's end, but will our little favourites be so put upon? Supposing, for arguments sake, that we invert the pile of supers, placing them, as your correspondent would like them, the heaviest on top, and that their number be seven, similar to the one referred to in your opening number. At such an altitude from the entrance, I leave it to the practical apiarian to say if it would be at all likely they would put themselves to the trouble of dragging up their load so far past so very many inviting empty and filling cells, and what prospect would there be of that all but sealed out super ever being completed in such a position. Your contributor says truly, and the expression was my own, "That bees store their honey at



the point furthest from the entrance," (of *their hive* of course,) but then he must bear in mind that supers are not their hive, but merely artificial adjuncts thereto in the first instance, optional with the workers whether they accept them or not, according to circumstances, but why shed so much ink on a point of every day occurrence during the working season? When my strong storified colonies become full and ripe for supering, I generally, to save subsequent trouble, give a couple of supers to each at the start, and do the bees agreeably to your correspondents preconceived notion, mount up into the upper and commence work therein? I never yet met in all my experience, with a single instance in which they did, their invariable practice being to begin in the lower, and when it has been fairly taken possession of, with the advance of comb building therein, they gradually extend upwards into the upper,

forming into a dark mass at either end, by and-bye rope festoons are suspended all through it, and comb building is begun, and so on progressively with every additional super.

Another correspondent, Mr. C. W. Smith, draws attention to a hive called the "Carr-Stewarton." Should it be the hive in which my reviewer expects the bees instincts, to quote his enlightened expression, "to give the lie" to a system of management by which they have for the last fifty odd years, yielded up tons of the finest honey comb for the market, then I would most respectfully suggest the propriety of the inventor distinguishing his discovery either as the "Carr-Manchester" or simply the "Carr " presuming it does not possess the form, and is to be manipulated in a manner, the reverse of what is pursued with the well-known and justly celebrated Stewarton.

A RENFREWSHIRE BEE KEEPER.

## THE STEWARTON HIVE AND SYSTEM:

A Further Critiquing of the Hive  
Vol I #8 December 1873 pages 119-120

A "Renfrewshire Bee Keeper" on page 88, seems to have felt the light tread I made on his corns very much. Now I really had no intention of hurting him, although he has had no mercy on poor Mr. Pettigrew' but I could not let such palpable errors pass unnoticed and in reply he repeats those errors, and makes it out that in my article on page 75, I said things that I did not. Last month I wrote a very cutting reply, but after I had written it, I thought that he probably like myself, had no other object in view than to encourage bee keeping, and to give to the public any information that we thought would be of service to them, and that angry words were so different from the soothing hum of our favourites, and it was not the way to assist bee keepers in making their bees more interesting and profitable to them.

I must make a few remarks on his article to prevent erroneous impressions, but I will draw it as mild as I can. A "Renfrewshire Bee Keeper" begins by saying "If Kerr (or Carr as spelt in England) did not invent the Stewarton hive in 1819, I should be interested to be informed who did?" And again he says, "When next Mr. Carr takes up his pen to enlighten your readers as to the 'origin of storifying' his researches must ante-date 1668." Now, I never said that Moses Rusden or anybody else was the inventor of the "storifying system," and I had no idea that a "Renfrewshire Bee Keeper" claimed for Robert Kerr that good invention of "storifying," but thought he only claimed for him the

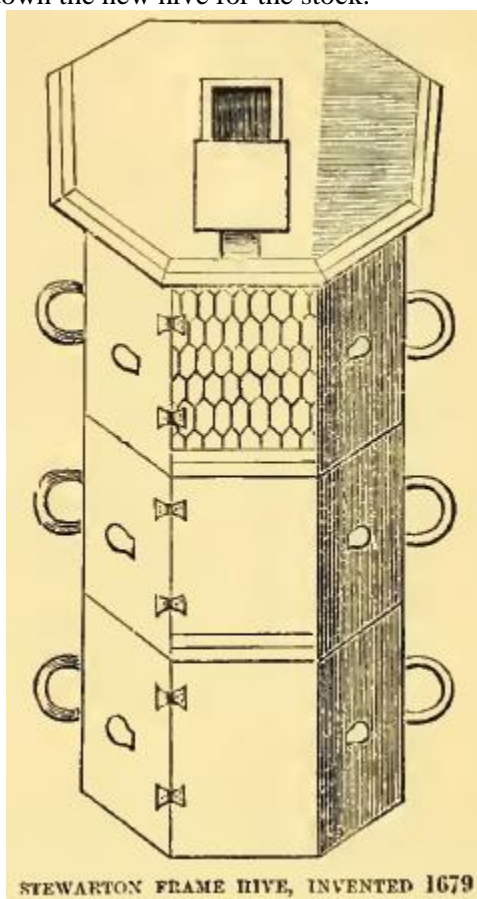
invention of the Octagon Stewarton Hive, so I proved to him that Moses Rusden, in his work published in 1679, first describes the Octagon Stewarton Hive, as made by Kerr, with bars or frames inside a box.

Rusden on page 81, thus describes his box hives: "They should be made of deal or fir wood. The form is octagon or eight square, which, being near to roundness, is much better than to have them four square, because the bees lying in a globulous body in the centre of the hive, are thereby the nearer to the circumference in this form, as well as in round hives. The height of the hive is ten inches from the top to the bottom on the outside, and sixteen inches over from outside to outside, with a sliding shutter to run easily in a groove in the middle of the top, backwards over the back window, the shutter is to cover an hole five inches square in the middle of the top of the hive, also in the hive are two large glass windows, one before, the other behind, with doors to cover the glasses, and two handles on each side, one for lifting them up, also a frame in the inside, made fast with pins for the bees to fasten their combs upon." Is not this a description of the present Stewarton hive, said to be invented by Kerr?

I was well aware that John Geddie obtained a patent from King Charles II in 1675, (not King James II. as stated by a "Renfrewshire Bee Keeper") and used octagon hives, but they had no frames inside for the bees to fasten their combs upon, but simply octagon boxes, but Rusden in his work published four years after, improved Geddie's hive and put frames in for the bees to fasten their combs upon. So as this is the earliest

account I have seen of the Stewarton boxes, I believe Moses Rusden was the inventor of the Stewarton hive 194 years since.

Now for the "storifying system." John Geddie in his work "The English Apiary" published in 1675, claims to be the inventor, but he was not, as Dr. Charles Butler, (the father of English apiarians,) in his work, "The Feminine Monarchi, or a treatise concerning bees, and the due ordering of them," published in 1609, storified his hives in a very singular manner, by turning the stock hive bottom upwards, and putting another hive on the top of it. Samuel Purchas in his work, "A theatre of political flying insects, &c.," published in 1657, says on page 85, 'I have not found Butler's plan of turning the stock hive upside down and placing an empty hive on it to answer, as the bees have lengthened the combs upwards 'and not downwards from the top of the hive, newly set over them, so that by parting of the combs which will not be without trouble, I never found any to have wrought above half-way upwards, so that having no foundation but the old combs, it is impossible to set down the new hive for the stock.



On page 58, Purchas says "All things considered the straw hives are the best; and the bees do best defend

themselves from cold when they hang round together in manner of a sphear or globe, and therefore the nearer the hives conic to the fashion thereof, the warmer and safer they bee. The best shape of hive is that likest to an egg, with one end cut oft" as we usually order it when we eat it."

Thomas Hyll, Londoner, in his work, "A profitable instruction of the perfile ordering of bees, with the marvellous nature, propertie, and government of them, and the necessarie uses both of their honie and waxe, serving diversely, as well in inwarde as outwarde causes, gathered out of the best wryters, Published in 1574. Now Hyll and the writers before him appear to know nothing about storifying, and as Butler is the first one that I can find that mentioned it, I think he was the inventor of the "storifying system" as he was of many other things.

I cannot understand how that plague of a slide in the Stewarton bars, said to be invented by Kerr, can shut off the queen nurses and pollen collectors of the central breeding position from the honey department, as stated by a "Renfrewshire Bee Keeper " and yet admit the bees loaded with honey. Surely he does not mean to say, as his statement implies, that the honey collectors are different sized bees from the nurses and pollen collectors?

These slides are the worst part of the Stewarton hive, as the bees fasten them with propolis so first that they cannot be drawn out without heating them, and I have frequently broken them in attempting to draw them. Then again being only three eights of an inch thick, they do not retain the heat in the hive, as the cover should be the thickest part of the hive, as heat always ascends, and it seems ridiculous to have the sides five eights of an inch thick and the slides and bars only three eights of an inch thick as the cover. I soon altered my Stewarton hives, did away with the slides and put a good one inch cover on the top, as F. Cheshire in his article, page 94, says, "allow as little heat as possible to escape through the walls of the hive."

I do not confound two distinct operations together nadiring, and supering, as a "Renfrewshire Bee Keeper" supposes, but I condemn his system of nadiring and supering, which is contrary to all good management as now practised by all bee masters; not "bee keepers." Who except a "Renfrewshire Bee Keeper" would rather put a nadir underneath, than a super on the stock (or two supers at a time to save trouble as he says)? so that as soon as the bees have built some combs in the top super, they carry all the honey into it, and the queen, drones, nurses, and pollen gatherers go up into the

super on the stock box, as it is warmer than the nadir below, and fill it with brood, and so spoil all the beautiful virgin honey combs. As I found this was generally the case, I raised the first super I had put on the stock box, when it was about half or three quarters filled with combs, and put another bar frame super underneath it, and if the queen came up (which I do not allow with my adapting board with narrow slots) she would find no comb in which to lay her eggs (as a "Renfrewshire Bee Keeper" says) but an empty space immediately over the stock box. But then I always let the queen have plenty of empty cells in which to deposit her eggs, not one of those shallow small things as sold for Stewarton hives, as every bee master condemns such shallow stock boxes, and after a great number of years experience, I am actually adding an inch to the depth of my nine inch improved bar frame hives, and going back to the same depth of hive that my father and I first used.

My father worked on the storifying system three quarters of a century since, and I have now got a stock of bees in a hive that he had made in 1806. There have been bees in it from that time to the present more or less, and it is now as sound and good as on the day it was made. Does not this show the great durability of wood over straw hives?

The Manchester School do not advocate a large roomy straw skep as the *ne plus ultra* for pure comb and successful bee keeping, as stated by a "Renfrewshire Bee Keeper," but they advocate a moderate sized bar frame hive, on no account larger than the Rev. L. L. Langstroth's hive, (generally called in England the Woodbury hive) containing about eighteen or nineteen hundred cubic inches of inside space.

It is all nonsense about a "Renfrewshire Bee Keeper's" "vacuums and extra labour, (as poor Nutt thought) in carrying the honey into the supers, and he

asks," But will our little favourites be so put upon?" I answer, "Yes," because it is their nature to carry the honey the farthest from the entrance to their hives. A "Renfrewshire Bee Keeper" claims this expression as his own, "Why we all know it was used nearly three hundred years since."

My experience coincides with a Renfrewshire's, that if two empty supers were put on a stock at the same time, (but what bee master would ever do such a thing?) the bees would not commence work in the top super, but in the one next to the stock box, and I say as soon as they have filled it with comb the queen will enter and spoil all of them with brood.

It is ridiculous for a "Renfrewshire Bee Keeper" to talk about "the tons of honey the Stewarton hive has yielded the last fifty odd years;" it is not the hive that produces the honey, as bees have been known to fill an old soap box, on which the hive had been placed, with as splendid honey combs as was ever taken out of a Stewarton hive. It would be just as ridiculous for me to say, "The hundreds of tons of the finest honey comb for the market that bar frame hives have yielded the last ten years, nay we may say that have been obtained out of old straw hives or wicker baskets plastered with cow dung as used about Blackpool."

I repeat there is nothing in the Stewarton hive that we do not get, and a great deal more in an improved bar frame hive, which you can enlarge to twenty bar frames or diminish to three at any time, whenever wanted, in two or three minutes.

I do not believe in anonymous correspondents, as nothing should be admitted into our journal that any one need be ashamed of. It is a rule that has answered well with the *American Bee Journal* to publish their names and addresses, and it has made that journal what it is.

WILLIAM CARR,  
Newton Heath, near Manchester,

## THE STEWARTON HIVE:

### Defense of the Slides

Vol I #9 January 1874 pages 136-137

Sir,—I had almost made up my mind to confine myself entirely to relating my experience in my own apiary, and not enter into any discussion whatever but your closing remarks upon my crown board, (see page 114,) and Mr. Carr's remarks, (see page 120,) induce me to throw aside the resolution.

It is not many years since the very clever apiculturist, S. Bevan Fox remarked in the *Gardeners' Chronicle*, amongst other objections to the Stewarton hive, that notwithstanding the number that had been sent to England, he was not aware of a single super having been obtained, the cause of this arising no doubt from their owners not adhering to the instructions sent, choosing rather to be guided by those who were of the old school, thus getting disappointed and rendering the hive liable to much unfair criticism. And now we have Mr. Carr condemning the principle of these hives, and

trying to palm off an inferior one, as possessing all the advantages of the famed Stewartons. As the properties and working of these hives have already been ably described by a "Renfrewshire Bee Keeper," who is still likely to defend their principles and confound the audacious attempt of Mr. Carr, I will confine myself almost wholly to the slides and crown board, but say emphatically that if Mr. Carr's article is correct, he knows little of the working of the Stewarton hive, and proves this in his paragraph on the two supers.

It matters not whether the system is the best or not, if any person or persons approve of it, and it is very aggravating after one has so kindly given detailed instructions at great length and pains, to see another come forward, condemning the construction and working of the hive, when he himself is ignorant of its proper management, and so rendering all our work futile; but Mr. Carr is not the only person. Another of the Manchester School, viz., Mr. Pettigrew, some time since, in the *Journal of Horticulture*, condemned these hives for utility, and denounced them as being small and shallow, and to crown all, he vented his spleen on their beautiful and unsurpassed supers, as being all sugar, but his evidence in this case was not worth much, because one of the supers so called sugar by him, was gathered by my own bees from the bloom of the bean, and although I have sent in my own share of supers to the market, I never in all my life tried to induce my bees to fill supers by feeding, in fact the construction of my hives will not permit of it. From what I knew personally of Mr. Pettigrew, I fain hoped that it was only his ignorance of the superiority of the Stewarton hive and its produce, over the old straw, but alas! from what has transpired lately, at the Manchester Show, I now form a very different opinion. Some people write solely for the purpose of diffusing knowledge, and some for ostentation. Mr. Pettigrew evidently belongs to this latter class, for in a recent number of the *Journal of Horticulture*, he introduced as new, a very clumsy method of supering, and in a more recent number, Mr. Breen attacked him for being a plagiarist, which was followed up by what Mr. Pettigrew thought a satisfactory apology.

But to return to the slides and crown of the Stewarton hive, Mr. Carr condemns the slides, first, because they require heating to unfasten them. I cannot see how there can be much objection to this, as one heated iron will loosen a dozen or more slides in a few seconds, I never break any, nor find any difficulty in withdrawing them. The next objection he makes to

them is their thinness, but here he is wrong. He says they are three-eighths, whereas they are only a quarter of an inch thick. His experience here is quite at variance with mine, he advocates a thick, but I a thin crown, in fact the thinner the better, which is one of the best features in the Stewarton hive. The thinness permits an insensible escape of the steam generated by the bees, it also allows the heat to escape into a super, thereby insuring the purity of it. The same heat ascends as if a large hole were in the centre, but the vitiated air is not allowed to ascend and so discolour the combs.

To prove the foregoing, if we lay a piece of glass close upon the top of the hive, in a short time much wet is produced through the condensed steam, or if we lay the same thing or a slate on the top of the covering it soon becomes wet, and again even though we do not draw a single slide during winter, the extreme thinness of the slides allows the steam to evaporate, hence the reason we have never mouldy combs, such as are sure to be found in hives with thick crown boards. In this case the steam rising from the bees is absorbed, and retained in the thick crown board, until it becomes not a passing, but a fixed cloud with a continual shower falling back upon the bees, and so causes dysentery, and ultimately the loss of the hive. So effectually is ventilation carried on with thin crowns that in fact I am careless whether I withdraw them during winter or not. Although I advocate insensible crown ventilation, and may add that the first time I saw this recommended in print was a number of years since in the *Journal of Horticulture*, where a letter from Mr. Langstroth, recommending the carpet, and one from my own pen appeared at the same time recommending a similar plan. As my intention in writing is not to condemn other hives, nor try to alter Mr. Carr's opinions, (for like John Gilpin he rides his hobby, and is away with it) but simply to advise those who have gone in for the Stewarton hive, to stick to the instructions sent, and to those given in this Journal, I assure them that they will be rewarded, as many now in England have been, since they were privately told to pay no attention to quacks. I think we may infer that seeing Mr. Pettigrew's judgment cannot always be relied on, that people will pay no attention to his remarks on the Stewarton hive at the Manchester Show, but will endeavour to beat the original bee keepers of the west with supers finer than any produced on the Pettigrew system, and then they will have no reason to regret having taken the advice of

A LANARKSHIRE BEE KEEPER.

## THE STEWARTON HIVE AND SYSTEM:

The difference between the  
Stewarton hive and Geddie's hive  
Vol I #9 January 1874 pages 137-140

In the opening numbers of this periodical the present writer contributed an article on the Stewarton hive, its origin and manipulation, and it is requisite the reader should be informed that this hive and mode of bee management, has been for many years very extensively employed in and around its natal place. The bee keepers in the district possessing such colonies, although generally well informed, and thoroughly enthusiastic in everything appertaining to the bee, have their interests chiefly centred in so managing their colonies to the very best advantage, as to enable them to repay the outlay for hives and swarms together, leaving as much margin of profit as possible; consequently every conceivable plan is as carefully considered and weighed as the moves on a chess board are keenly discussed, and when thoroughly tested, is either adopted or discarded by the general body, as the case may be. Therefore there are points so well understood and firmly established, that they have passed into axioms, consequently what I described was no hap-hazard crotchety speculation of mine, but a recapitulation of such of them as would be at once endorsed by the "Ayrshire Apiarian Society."

Yet notwithstanding, your correspondent, Mr. Wm. Carr, was rash enough to step forward and throw down the gauntlet, deny the origin, and "condemn" the manipulation, leaving me no alternative but to point out his error, and I concluded from his silence in the November number, that he had accepted the corrections in the same fraternal spirit as that in which they were tendered. In that month we had only your late valued correspondent. Major Munn, poking a little fun at the similarity of name of the Kerr and Carr Stewartons, and his putting right my slip of the pen, in substituting James II. for Charles II., which arose from my hurriedly copying while writing, from the title page of my copy of Rusden's work, where he describes himself as bee master to the King's most excellent Majesty, James II, (1687). How very saddening to think that ere what he had written, had met the eyes of your readers, the hand that guided that genial pen was mouldering into dust.

The December number appeared, and then

"that unhallowed morn arose,  
When first the Scot and Car were foes."

and the whole force of your correspondent's philippic burst upon my unsuspecting head, I thought as I read, well, there is an old and trite idea, that there is an instinctive inclination to copy and reproduce the manners of those we mingle most with, bee masters with those of bees for instance. Supposing one of our little favourites gets out of his latitude, and crosses my paper while I write, lovingly I take up the little creature, and gently set it on the right road, but how am I requited for the kindness? does it not turn and attempt to sting? and if it fall to the lot of but a bee *keeper*, to take up and send away on a correct bee line, a bee master, how much more tenderly must he be handled? and does he but suppose his bristles are in the slightest degree displaced, he too seeks his revenge, in attempting to sting.

We smile as we note the rapidity with which he flits, from paragraph to paragraph, in quest of some little opening, into which he vainly tries to thrust his dart, but all proving futile and ineffectual, as a last resort, bee-like, he dashes full tilt on my bee veil, my unfortunate *nom de plume*, upon which he blindly expends the full fury of his wrath. Before proceeding to such, I would seek to remove an impression from Mr. Carr's mind. I had not even the smallest intention of classifying him with that section of the "Manchester school" of straw hivists, of which Mr. Pettigrew is the acknowledged head.

As to slides, there is such a thing as a tight and bad fitting slide, as well as a bad fitting crown board. I have never yet employed heat for their extraction. For misfitting ones, a pair of pincers is generally sufficient, but I like a good one and three quarter inch projection to draw by, the sharp edges rounded off with a hand plane, it may be extra easy at first, but gives no trouble afterwards. Your correspondent's fault as to their thinness, is a manifest advantage, as through it Kerr was enabled to counter-sink his bars, thereby lessening the intervening space between the stock and supers, whatever glow of warmth passed into the latter, being an apparent help, along with the external woollen coverings, to raise the temperature, and speed on comb building. At the present season, the slides in my stocks are entirely withdrawn, and ventilation rendered perfect with Indian matting, cut into octagon, square, or round form, in keeping with the form of my several stocks, secured with minikin tacks, and bound round the edges to prevent rippling. That material, from long experience, I find gives off, and does not retain the damp vapours, as the blanket recommended by your correspondent must do, neither does the matting afford

the same shelter and congenial rendezvous for moths, and their eggs, as damp woollens. In addition to the enumerated advantages of the bar and slides, alluded to by "A Lanarkshire Bee Keeper," I will meantime only add, that any particular bar or frame, as the case may be, can be raised without disturbing the rest of the stock.

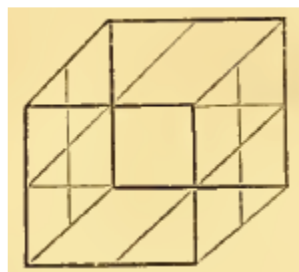
Your correspondent jeers at giving two supers at a time, and asks "What bee master would ever do such a thing?" Should he ever have the good fortune to possess colonies as populous as I have frequently had, he may require not alone to give two, but as many as three and four, as I have before now had occasion to do, on some sudden burst of oppressively hot weather, finding it at all times more profitable, keeping my bees fully occupied in fabricating comb in prospective supers, to hanging in idle masses from the landing board, or going off in swarms. It is a sound axiom in bee keeping, too frequently overlooked, that the more we tempt bees to do, the more they will accomplish.

As to the origin of the Stewarton hive, Kerr invented it as truly as Watt did his engine, and it would be equally illogical to give credit to Newcomen, for the inventions of Watt, as to Geddie or Rusden, for those of Kerr, and pray what in strictness did either Geddie or Rusden invent? Only certain unmentioned improvements. What they did was to pirate the hive they saw in operation with Dr. Wilkins, the Bishop of Chester, this we have on the best of all authority, that of Rusden himself, as I have already pointed out. The Bishop was clearly the first possessor of both a storified colony, as well as an octagon hive, of which we have any record, but whether its inventor or not, must ever, I am afraid, remain an open question.

With the evident desire of elevating his former champion inventor, the apothecary, from the humble position in which I placed him, as the mere dispenser of Geddie's licences, your correspondent most unfairly says of Geddie's patent boxes, "But they had no frames inside for the bees to fasten their combs upon, but simply octagon boxes, but Rusden in his work published four years after, improved Geddie's hive, and put frames in for the bees to fasten their combs upon." But so far from this being the case, I find at the 89th page of Geddie's work, under the heading "A new discovery, &c." "Within each box there is a square frame," and that your readers may not be mystified into supposing "Is not this a description of the present Stewarton hive said to be invented by Kerr?"

I here subjoin a sketch of the aforesaid frame taken from Geddie's work, which, instead of being what is

understood by a frame in the present day, rendering each comb moveable at pleasure was in other words but a series of "cross sticks," to aid in supporting the combs, and by which the central square portion might be more readily torn out at the demolition of the contents of the box. In my first hives of both wood and straw, before I had as much as heard the name of either Geddie or Rusden, I secured such "cross Sticks" or bars, separately, with screws from the outside, and in



the breaking up of my waxen citadels, unscrewed and secured at once, not the central square merely, but almost the entire contents, and it certainly did not occur to me to dignify my inventive advance on my cottager

neighbour's willow wands, by styling them either bar or frame hives.

I have already endeavoured to show that the earliest record we have of both the non-swarmer or storifying system of bee keeping, as well as the octagon hive, was that in the possession of Dr. Wilkins, mentioned above. Your correspondent, in his endeavours to ante-date that period, has ransacked the works of Bulter and Purchas, a road I have travelled on a similar errand long ago without result. He alighted on a passage to the effect that after mid-summer, when swarming might be considered as over for the season, a usual practice with cottagers, even in our time, is to insert an eke, he would invert the hive, and place an empty one over it, in the hope that the bees would ascend and fill it too, permitting the original hive to be appropriated. It was so unlikely and absurd a proposition, that Purchas but referred to it to condemn it *in toto*, and indeed it would appear all notice of it has been expunged from my later edition of Butler's work, and yet your correspondent, in his anxiety to supplant the Bishop, would magnify on no better data Butler's bungling manipulation into "I think, (therefrom) he was the inventor of the storifying system, as he was of many other things." When I want a hearty laugh I usually take down one of the apiarian fathers, they are positively much more amusing than even the Rev. W. C. Cotton's recent translation of the grotesque "Buzz-a-Buzz," from the German. What would you readers think of Butler's recommendation of coating hives liberally with "cow dung," and his purifying ideas for a used hive, are equally good, the recipe is as follows:---Put two or three handfuls of malt or peas into the hive, set it before a hog, and it being



supposable the frunting mouth would water profusely over the guzzle, and the saliva, or "froth," as he styled it, would flow in abundance, it was to be well wiped round with a cloth, when it was to prove as irresistible to the bees, as, shall we say, your correspondent's "old soap box."

Mr. Carr mentions that such a receptacle (old soap box) has been known to yield as splendid honey, as was ever taken from a Stewarton Hive! Such an expression would lead one to suppose a well finished Stewarton super is a thing he has got to see.

It is not the hive certainly that makes the honey, no more is it the implement the farmer employs that makes his harvest, but in both cases there is a harvest to reap, and the farmer who can put most hands on the harvest field, and employs the latest and vest machinery, produces a better sample and greater profit than he who sticks to the old hook, and smaller force of workers. We too have our harvest to reap, the crop is usually abundant, going to waste, and to be had for the gathering, our hands are all alike willing, and he that combines his force, and employs such a reaper as the Stewarton, produces the largest yield, and the finest sample put upon the market, while he that sub-divides his workers into odd corners of the same field, with the old skep, hook fashion, is left far behind, both as to quantity and quality, Surely we have not adopted a hobby so utterly antiquated and effete, that it is beyond the pale of any improvement of advance. Is not this very periodical supplying a felt want, to chronicle the steps of our onward march?

Was it not the same fluid water converted into steam, which raised the lid of the tea kettle, the piston of the engine of Newcomen as well as that of Watt, with what immense difference as to results. So was it not the same honey which was carried into the manure plastered wicker hive of Butler, the octagon of Geddie, the modern Pettigrew big straw skep, as well as the Stewarton hive, but with what difference of results as regards the latter? In the hives of Butler, Geddie, and Pettigrew, we have one common result. Overlooking the honey yielded by the spring flowers, the gooseberry, the plane and fruit tree, we have in quantity the pure limpid secretion of the white clover, the greenish lime tree, the inky exudation of the honey dew leaf, and the reddish coloured gleanings of the purple heath, together with the many hued varietie of pollen, dark used enveloper, eggs, larvae, grubs, and young bees in all stages of progress, in one conglomerated mass of inextricable confusion, in all these hives alike, but what

of the Stewarton? a hive where our industrious little favourites have a fair opportunity of carrying out the beautiful systematic instincts of their nature, bringing order out of chaos. Here we have an ample force by combined swarms, then, as I have already styled it the separate "honey condenser" and the shallow super compartments, where the pure virgin honey is stored in massive combs, as distinctly and sepatately as possible, each freely communicating by means of the ingenious slide, and totally distinct from all such extraneous impurities as mentioned above. And not alone does it offer those facilities for having their treasures duly classified, but the workers too. By the same contrivance, the honey gatherers are allowed to stream up with their loads to the supers, by the end openings free from all obstructions, and distinct from the province of the queen nurses and pollen collectors of the central department. Was it not too, the same with the juice of the sugarcane, which was set in the breakfast table of our forefathers, in moist, dark, repulsive form, sparkling with the black diamond refuse, and chips of the coal hogsheads, sent out to fetch it home, freely interspersed with the crawling sugar acaria, damped with the sweat, if not the blood of the slave? Fit accompaniment was the honey stored in the blackened brood combs of the common straw skep, but thanks to the inventive genius of two Strath-Clyde men, a Watt and a Kerr, we have in one day the same juice of the cane, and nectar of the flower, in what a different form, the sparkling crystals of the "Greenock Crush," free from even a spec of impurity, side by side with the luscious clover combs from the Stewarton super, vying with each other in their glittering purity, both sweet illustrations of the strides of progress, in their respective departments.

In conclusion, I have only to add that long may the *British Bee Journal* prove a medium for the interchange of ideas on our common hobby. We have all something to communicate, and something too to learn, and in the discussion of all debated points, I trust that our "chairman" will see to it that the language employed is at all times strictly parliamentary.

Correspondents who may choose to enter the lists, and throw down the glove, to do battle for any particular position, must avoid indulging in such vulgarisms as "Giving the lie to," and employing such clenching arguments as "It is all nonsense," or they will be looked upon as foemen, unworthy of the steel of

A RENFREWSHIRE BEE KEEPER.

## THE STEWARTON HIVE AND SYSTEM:

A Question of the Shallowness of the boxes

Vol I #10 February 1874 pages 154-155

Sir,—Your anonymous correspondent on page 138 does not firing a single fresh argument to uphold his shallow boxes, but tries to make a little capital of an expression used by me on page 76. Where speaking of the exploded collateral system (not the supering or Stewarton system is stated by your anonymous correspondent) I said, "The bees instinct gives the lie (to the collateral system) when applied to them." This expression I made advisedly, it is perfectly gentlemanly and parliamentary, and is the most expressive short word for the meaning intended, to be found in the

English dictionary. I accept your anonymous correspondent's apology for speaking so unguardedly about the Manchester School, as that school recommends a good sized but deep bar frame hive as the *ne plus ultra*.

I am not going to draw my steel against your anonymous correspondent, and I am sorry if I have hurt him, but I never quarrel with anybody, and lately I have heard a great deal about "Peace on earth, good will to men."

WILLIAM CARR,  
Newton Heath, near Manchester.

## THE STEWARTON HIVE AND SYSTEM:

The Stewartons' reforms of the Octagon Hive

Vol I #11 March 1874 pages 174-175

In your last issue, your correspondent, Mr. Wm. Carr, while taking leave of the above subject, would fain administer a parting hit at two points, the "shallowness" of the Stewarton hive, and the *nom de plume* of "your anonymous correspondent."

With regard to the first, I have already had occasion to remark, that Mr. Carr was "rash" in entering into this controversy, and I employed the word advisedly. The Stewarton instead of being shallow, is the reverse, a very deep hive, 18 inches of breeding space, far exceeds the depth of most hives in common use, this, like many another controversy, recalls the old story of the two sides of the shield, or the same thing viewed from different stand points. Your correspondent, instead of looking at the hive as a whole, considers merely a sectional portion of it. The same contracted grasp led him into preferring crown boards to slides for such a hive, when any one at all familiar with its manipulation, knows, that before the crown board could be introduced, the sections of the hive would have to be separated, and the bees let out about the bee masters ears, while with the ingenious contrivance which he styles the "Plague of a slide," additional space can be given, bees added, or communication cut off without liberating a single worker; and need I add the thinness of top he too condemned, manifestly facilitates communication between the two divisions, indeed, your able contributor, "A Lanatkshire Bee Keeper" rightly accounted for the want, of success complained of in

England with this hive, that our southern friends were possibly wise "above what was written."

From your correspondent's sectional view, had he more carefully perused my remarks, he would have observed we are so far agreed that instead of having the separate body boxes but six inches deep, I at the start increased them to seven, (see page 13), and now I employ both seven and nine inch boxes, so as to accommodate the extra prolificness of the hybridized Italians, and with my amateur sympathies, to enable such sections to be employed at a pinch for separate swarms, or "beat-outs."

Mr. Carr reiterates his fear that his criticism "hurt" me, possibly I may have thought the flat contradiction, that I was "mistaken" in both the origin and manipulation of a hive, with which I had been long familiar, savoured a little of rudeness, but this could not hurt me, when I knew it could be so easily demonstrated, there was no mistake about either, but what did hurt me was that this excellent periodical should, even in one instance, have the semblance of degenerating into a vehicle of puffery, for simultaneously with my reviewers criticism, the advent of a new hive was proclaimed, bearing his name, and to those of us with whom bee keeping is but a pastime and an amusement, and who never had the smallest pecuniary interest in any hive whatever, the taste of the inventor did seem questionable, trying to depreciate a hive so justly celebrated as the "Stewarton" of Kerr's invention, with the seeming intention of elevating the "Carr-Stewarton" and his logic seemed most inexplicable in condemning the 6-inch sections of the original Stewarton, while the hive he appeared to have selected to bear his name to posterity, should be of that



identical depth. Now it did afford me much pleasure to find from a private note from our Editor, that I was mistaken in this, that the new hive, as your advertising columns now bear evidence, was designed by Mr. C. W. Smith, to whom alone is due the credit of its invention, and that it was named by him in honour of Mr. Carr, consequently I do heartily apologise to the latter gentleman for any depreciatory remarks of mine in consequence, and I feel certain that when this meets the eye of your correspondent, "A Lanarkshire Bee Keeper," he will reciprocate the like feeling.

In the January number I endeavoured to put your correspondent right, as to the fact that although Geddie in 1675 obtained a patent, and Rusden subsequently sold licenses, for the octagon storied hive, still we had it on the authority of Rusden himself, that the new discovery was none of theirs, that, to use his own words, "the transparent hive first showed to us by Dr. Wilkins, late Bishop of Chester," the bishop was consequently, as I said, "the first possessor, whether its inventor or not, must ever, I am afraid, remain an open question."

When writing this sentence, I quite overlooked having some years ago met in *Milton's Practical Bee Keeper* with a most interesting letter, dated Feb. 16th, 1654, by a Fellow of All Soul's College, Oxford, then in his 21st year, who afterwards became the world renowned architect, Sir Christopher Wren, accompanying which was a particular description of our three storied bee hive. "Last year, as I remember, we put in two swarms, &c." This was May, 1653, or twenty years before Geddie obtained his patent. Milton informs us that the hive is the "original one attributed to Mr. Thorley, who lived at Oxford a century after Wren" Now the Octagon hive of Thorley, is the exact counterpart of what we find illustrated in both Geddie's and Rusden's works, therefore the identical hive, Rusden first saw in the possession of Dr. Wilkins; and consequently the invention of no other than Sir Christopher Wren himself. The strong presumption that the hive the bishop possessed was Wren's invention is materially strengthened by referring to the condensed biography of Wren, in *Illustrious Englishman*, vol. iv., page 375, we find the genius of young Wren early displayed itself While yet a boy, he invented a sort of orrery and some other mechanical contrivances, which introduced him to the notice of *Bishop Wilkins*, Dr. Willis, and other eminent mathematicians of the day, (*italics mine*). The Bishop, we thereby see, was one of Wren's early patrons, and the letter alluded to above, from its deferential tone, may have been addressed to

him, or at least to one of his patrons, this Milton carelessly omits, as well as to reproduce the description of the hive referred to in the letter by Wren, in this letter he expresses regret "the device not fully answering our own expectation." . . . Who have tried the like experiment for us, leads to the inference that he had presented each of his patrons with one of the hives to experiment with, hence its coming into the possession of Dr. Wilkins.

The dissatisfaction Wren refers to, arose from the bees "filling almost the passage hole quite up, leaving themselves only a little hole, as big as two fingers, might go in for this passage up and down." Rusden's subsequent difficulty with the same hive, arose from a different cause, as the unhatched brood in upper box corrupting after removal.

It remained for the ingenious Ayrshire Mechanic, Robert Kerr, to obviate both, in his Stewarton Hive, making the spaces between the several combs moveable at pleasure, by sliding slips of wood, so that the communication between the sectional boxes, could be made as free as if they were but one, and by means of his shallow supers, provided distinct and separate chambers for the honeyed store, shutting off the queen and breeding department, by keeping the central slides of the upper stock box closed, saving the side ones, for an upward passage to the supers from the outer honey combs, where most the honey gatherers do congregate.

We can all sympathize in the agreeable surprise Milton experienced on purchasing at the sale at Strawberry Hill, a very old book on bees, (name unfortunately not given,) to find that our great architect, Sir Christopher Wren, was a contributor to the subject of bee keeping, and the inventor of a hive long attributed to others.

The distinguished architect of the octagon storied hive, did not design, as Mr. Carr supposed, anything "shallow" or low, his aims were too lofty for that, as my octagon colonies attaining a height of 46 inches, tower over all others in the apiary, much in the same way as that artist's great work, St. Paul's, looks down upon all compeers, and the idea of combining the labor of two swarms to effect his purpose, was quite in keeping with his stupendous work of St. Paul's, being completed in 35 years under one architect, while its great rival of St. Peter's at Rome, occupied 145 years to build, and employed a succession of twelve architects in its progress. We are told by his biographer, that "one of the happiest parts of the invention (St. Paul's) attained by the octangular arrangement of the piers, which is as

beautiful as it is novel," may have suggested itself from the original design of his octagon hive.

We, who have long benefited by employing octagon storified colonies, experience in our apiaries the aptness of the sentence, cut upon their first inventors tomb in St. Paul's: "Lector si monumetum requiris? Circumspice?" (Reader, seekest thou his monument? Look around!)

But what am I to say of the remaining point, my "Bee veil?" simply that here too I'm quite agreed with your correspondent as to the propriety of nothing being admitted into these pages of which any one need be ashamed, and may I be permitted to add, whether subscribing his name or *nom de plume*, those of us who employ the latter might be quite as chary of sullyng it, as those that use the former, still at the same time, I am at a loss to conceive how employing either, can effect in the smallest degree, an argument *pro.* or *con.*, without dragging in Shakespeare's hackneyed line, "What's in a name?" I must confess Mr. Carr's reiterated reference to this, did tinkle in my ear, something like in legal parlance, "No case, abuse the opposite attorney."

It is now 14 years since the present writer penned his first effusion on bee keeping, for the *Cottage Gardener*, now *Journal of Horticulture*, and arrested his hand, in the act of adhibiting his usual signature by the thought, that having no wish to traffic in either bees or bee hives, his name or initials, would convey no useful information to the reader, and after a look through, concluded that he who was evidently the commodore of the little fleet, displayed the better taste, in adopting the *nom de plume*, "A Devonshire Bee Keeper," which carried with it an idea of the writers whereabouts, for comparison of seasons, &c., this Mr. Woodbury subscribed down to that last touching article he dictated in a recumbent position the week before his death. I resolved to follow in his wake, and hoisted the "distinguishing pennant," a "Renfrewshire Bee Keeper," and after so long sailing under an old flag, which has "braved the battle and the breeze," one gets attached to it, and it becomes as it were so "nailed to the mast," that I must own I would be loth to "strike" it at the bidding of Mr. Carr, even had his small shot really "hurt" me, although I thus cheerfully "dip" it in compliment to his passing allusion.

There is less necessity for the contributor to these columns using anything but his real name, as "Our Editor," by his capital idea of the direct reply, saves as in the case of the departmental writers for other Journals, his being bored by querists writing him direct, he, having the private addresses of all his

correspondents, can, in any emergency of doubt and difficulty, appertaining to their several beats, summon their assistance to his aid.

Such of us as were wont to contribute to the bee corner of the *Journal of Horticulture*, have pleasant memories of one intercourse together there, to be sure we had the interminable clatter of the spades of our neighbours, those good fellows, the "blue aprons," then in the dormant season, when we had more leisure to fight our battles ever again, there was so much cock crowing over the correct penning of the competition poultry, and caging the songsters aright, that their combined bass and treble about drowned the more melodious hum of our lesser favourites, doubtless inducing "Our Editor" spiritedly to lead off a swarm, and a prime one it was, from Fleet Street, which was safely hived at Hanwell, and if we mistake not, we heard "piping" the other morning for a "second." Some may think with me that the mantle of "A Devonshire Bee Keeper" may prove a misfit on the shoulders of Mr. Pettigrew, with the latter "mounted on the paddle box," the pilotage of the older craft may prove somewhat in danger, through the intricacies of the beautiful, but deceptive reefs of Manchester fed productions.

Mr. Carr may have his own notions of these things, but I do think it much more pleasant to find one self rubbing shoulders with such fellow workers as himself on one side, and "A Lanarkshire Bee Keeper" on the other in the young swarm. I have all along read with much pleasure, and I trust with some profit, everything Mr. Carr has written upon bee keeping, down to his exhibiting experiences, detailed in your last number, which are most graphically told, and highly amusing, had I but dropped my bee veil in sending my obnoxious paper, he would have found himself grappling with an unknown foe.

When next your correspondent makes a raid upon the *Nom de plumists*, he may be able to elucidate some of those delightful little mysteries my pen has never dared to probe; for instance, why does the talented author of *The English Bee Keeper* invariably affix the linked letters "B and W" to all his communications? Did that able bee aster "R.S." select at random two adjoining alphabetical letters? Has the genial writer "Upwards and onwards," from something I read compared in size to a child's head, abandoned his bachelor's hobby, finding solace in "Boys" more obedient than the refractory little rascals he used to "holler" after at swarming time, in days gone by? Was "Jonas Jackson," of foul-brood celebrity, a reality or a myth? Does that excellent apiarian Mr. W, Bevan Fox,

of Exeter, claim kindred to the late Dr. Bevan? or have we here but a happy apiarian coincidence? although the present writer has never met any of these bee masters unveiled, yet he has pleurably enjoyed their communications all the same, and yet anticipates the satisfaction of meeting all of them, his dozen fellow county subscribing contributors, and many a fresh recruit, rallying round the unfurled banner, of the *British Bee Journal*, which we have all a common duty

to lend a helping hand to, support, and have no fear of "quarrelling" with any of them, unless they should desire to emulate Mr. Carr in first raising the discordant note amid the pleasant hum, being quite an admirer of his text, "Peace on earth, good will to men," although "noblesse oblige," me still to subscribe.

A RENFREWSHIRE BEE KEEPER.

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#### THE STEWARTON HIVE AND SYSTEM:

Mr. Carr Stays to his Thoughts  
Vol I #12 April 1874 page 192,

Sir,—I am glad to hear your anonymous correspondent on page 173 now employs boxes nine inches deep instead of the shallow six inch stock boxes. We shall I expect hear in a while that he has discarded the octagon form of is hive, and uses bar frames made all one size, so that they will fit every place in every hive he has.

My first expression about your correspondent did not "savour a little of rudeness" as he says, but was on the contrary very polite, (as I always had a great respect for him, and have read every article he has written since 1860 when he says he penned his first article in the *Cottage Gardener*.) I began with "A Renfrewshire Bee Keeper *I think*, makes a mistake in supposing that Robert Kerr, of Stewarton invented the Stewarton hive in 1819."

Surely your correspondents may express their thoughts and give what evidence they can for those thoughts in the Journal, without having it made a personal matter? but in last months Journal your

anonymous correspondent explained why he erroneously made such a personal attack on me. I gave my evidence to prove my thoughts in a straightforward honest way, and the more I looked into the authorities, the more I was convinced that Kerr did not invent the "Octagon Stewarton Hive," so my first thoughts are more confirmed than ever, and I hope your correspondent will allow me and many readers of your Journal to keep our thoughts, which have been confirmed by many years of practical experience.

I may also tell your correspondent, Mr. Symington, that I cannot see a word in my February note that complains about anybody using any *nom ae plume* they like. I never hesitate to say what I have to say to anybody, whether they are anonymous correspondents or the most honoured names in the realm, being myself perfectly independent of all, in every respect, but I always do it in a straightforward honest manner without any paltry subterfuge, and only for the benefit of bee keepers, and I think our editor should cut out any unguarded expression of any contributor, as the best of us are liable to make mistaken.

WILLIAM CARR.

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#### THE STEWARTON HIVE AND SYSTEM:

More Defending the Hive  
Vol. II #13 May 1874 pages 9-10

Having already dilated at full length on the Stewarton hive and system, its origin and manipulation, in the first volume, it is my intention in the second to supply some descriptive sketches of accessories to that hive, such as the original pedestals, and the floor-boards on which my octagon colonies rest, together with the style of hive-cover by which they are protected, and meantime subjoin a sketch of my first design of a cover; but before going into details, would seek to dismiss the

controversial matters connected with it, into which I was unfortunately dragged.

After the editorial note of last month, it is with much reluctance I again refer to that controversy, and certainly would not have done so, were it not that your correspondent, Mr. Wm. Carr, seems prone to misrepresent my opinions: a 'shallow six-inch stock box' I never employed, much less advocated; consequently, his continuous harping on the point is beside the mark. The generally recognised depth of a Stewarton Colony is 18 inches of breeding space; whether the sectional divisions be 2 at 9, 3 at 6, or 2 at 7 inches, with a 4-inch eke, or the combs the lull 18-inch deep stretch in one, as is the case with several of

mine, is a matter of minor importance, so long as we obtain that full area of comb, the slides throwing the several divisions into one hive.



I do not think your correspondent's prophecy, of my abandoning the octagon for the square form of hive is likely to be soon fulfilled. Having begun with the latter, and finding spring after spring the octagon colonies so much in advance of the square, these last were gradually consigned to the lumber-room, and are now only occasionally and temporarily employed during the full press of the working season.

That Robert Kerr invented the hive known to us as the Stewarton I had on the best Ayrshire authority before publishing the fact, and on the same page showed I was not ignorant that other and ruder octagon colonies existed more than two centuries ago, and have since abundantly proved that my reviewer was in error in attributing their invention to Rusden, as he did in the December Number; he (Rusden), as I have already shown, was but the dispenser of licenses for Geddie's patent. Neither was the invention that of the patentee, as we have, from the letter of Sir Christopher Wren reprinted by Milton, undoubted proof that the great architect claimed the invention, and had the identical octagons in operation twenty-two years before Geddie obtained his patent, which was subsequently illustrated in Geddie's, Rusden's, and Thorley's works.

Your correspondent, in reply to Mr. Symington, says, 'I cannot see a word in my February note, that complains about anybody using any *nom de plume* they like,' while, with amusing inconsistency, his pen still refuses to write that of the present writer.

I must positively disclaim the correctness of Mr. Carr's inference, that 'In last month's Journal your anonymous correspondent explained why he erroneously made such a personal attack on me;' he

seems oblivious to the fact he was the assailant, not I, my duty being simply to defend my position. On the same page with my reviewer's adverse criticism was heralded the advent of a new hive, bearing his name, linked with that of the well-known Stewarton; and although the thought may not have unnaturally occurred to me, as it did to others, the acerbity of this attack on the older hive might be partly accounted for by a paternal interest in his namesake; and the more so, when I found, at page 136, an esteemed correspondent express the opinion, 'And now we have Mr. Carr condemning the principle of these hives, and trying to palm off an inferior one, as possessing all the advantages of the famed Stewarton's,' which remained unrepudiated by Mr. Carr. It did so look, but remembering the force of our Scottish proverb, that 'Like is an ill mark,' did not give expression to the thought, beyond hinting, that there might be some peculiarity about the 'Carr-Stewarton,' that my reviewer there might expect the bees' instincts, agreeably to his inelegant expression, to 'give the lie to' their previous undeviating procedure. But so soon as it came to my knowledge, that Mr. Carr was uninterested in the new hive, I felt it would be a graceful act, on the part of his opponent, to publicly disabuse the minds of those who had entertained such a suspicion; and I really regretted to find last month, that whatever little generosity there might be in the act, unappreciated by Mr. Carr, and my motive misconstrued by him. All '*personal*' allusions in this controversy I have studiously avoided, as foreign to the subject on hand, and have made no boastful allusions to the extent of my Bee Library, nor have cared to inquire into the isolated greatness of him who is 'perfectly independent of all in every respect.' Whatever may be our respective positions in life, or standing in society, I presume we all meet in the *British Bee Journal* on a common level, and I have no doubt our Editor wishes to treat all his contributors and correspondents with as much impartiality, and place all on as perfect an equality, as the workers of the hive, his interest being chiefly centred in the loads we monthly bring to enrich the common store; and in so doing Mr. Carr is to me, as to the most of your readers, but a Lancashire, and the present writer

A Renfrewshire Bee Keeper.

## THE OCTAGON HIVE OF WREN.

Vol II #16 August 1874, pages 63-64

According to your correspondent, 'A Middlesex Bee-Keeper,' to quote from an author entails responsibility for the discrepancies that may appear in subsequent editions of that author's works, and implies an ignorance sufficient to 'confound the terms Octagon and Hexagon.' Such is the 'mare's nest' your correspondent has discovered, and which he seeks to ventilate in this Journal.

The following is the passage to which I referred, taken verbatim from my copy of Milton's Practical Bee-Keeper, page 3, published in 1843:—

'Upon looking over a very old book on Bees, purchased at the late sale at Strawberry Hill, I was agreeably surprised to find that our great architect. Sir Christopher Wren, was a contributor to the subject, if not the inventor of a beehive, of which he has left an illustration and description. I have printed in this work a copy of his letter. It appears to me that Sir Christopher's hive is the original of one attributed to Mr. Thorley, who lived at Oxford a century after Wren.'

Neither here, nor yet in Wren's letter, does the word 'Hexagon' appear. On the contrary, in the two editions of Thorley's work I possess—the one published in 1744, the other in 1765—I find in both the octagon form of hive insisted upon as follows:—

'An octagon, being nearest to a sphere, is the best form, since as the bees in winter lie in a round body in or near the centre of the hive, a due heat is conveyed to all the out-parts and the honey kept from candying, which, in a square, would not be so effectually prevented, and is many times prejudicial to the bees, and sometimes proves

their ruin.'

After perusing the above extracts the most superficial critic could not fail to perceive that the word 'hexagon' was a most palpable error which had crept into, what I presume to be, a subsequent edition of Milton's work. It is to be regretted that Milton stupidly failed to reproduce 'Wren's drawing of his Three-storied Transparent Beehive,' probably thinking this unnecessary, as he distinctly states it was the 'original' of the one attributed to Thorley, while he (Thorley) does not claim the invention, but attributes it to Geddie.

I have already pointed out, ad nauseam, that Rusden, who sold licenses for Geddie's patent, owned that he and Geddie were but improvers of the 'transparent hives first showed to us by Dr. Wilkins, late Bishop of Chester.' The Bishop was Wren's early patron, which accounts for his possession of the hives.

Geddie obtained his patent for 'His New Discovery' (!) in 1675: owns to have had experience of it but for seven years previously (1668). Wren's letter is dated 165-1; he had his hives peopled in 1653, twenty-two years before Geddie obtained his patent, and fifteen years previously, on his own confession, to his having had any experience of the hive, which, if we can rely on Milton as to the illustration, was the identical one invented by Wren and pirated by Geddie, and whose very drawing was successively made available to embellish the works of Geddie, Rusden, and Thorley respectively. We have, consequently, the strongest presumptive evidence that the first designer of the Octagon Hive and storifying system was none other than the world-renowned architect of St. Paul's—Sir Christopher Wren himself.—

A Renfrewshire Bee-Keeper.

## PHILOSOPHY OF HIVE SHAPE.

Vol II #17 September 1874 pages 76-78

I have been reading, or rather re-reading, with much interest and profit, the valuable communications of your experienced correspondent 'A Renfrewshire Bee Keeper,' who puts before us, with singular happiness of manner, the excellencies of the Stewarton Hive and System, which he evidently treats *con amore*. Of course, some of the advantages enumerated are not exclusively possessed by the Stewarton Hive, but are common to many rival competitors for fame and honour. By example—the plan of admitting only the honey-gatherers of the end combs to the supers, to the

exclusion of the queen, the nurses and the pollen collectors of the centre,' is claimed for the Stewarton Hive as being one of its 'most valuable features;' but, since the idea is denominated 'ingenious and original,' no doubt we are only to understand that it was first introduced into the Stewarton, although now possessed by almost every storifying or supering hive worthy of adoption by the advanced bee-keeper. Here, then, and in some other instances, those who virtually advocate rectangular hives by using them, may be congratulated upon their ability to show that they run in no uneven race; but your esteemed contributor, while summing up the whole matter, puts the question of shape in such a way as to force those who adhere to the rectangular

form, either to tacitly yield the palm, in this particular, to the Stewarton, or to contest the absolute validity of the argument adduced. At p. 54, vol. I. of the *Journal*, in the article referred to, we read,—'I should like to recapitulate some of the advantages of the Stewarton to the practical bee-keeper, over more vaunted and fanciful hives. First, then, as to form, all the best of the old writers on the subject are agreed that the nearest approach to a sphere (an octagon) is the most suitable shape; and certainly in my experience I have found that in such, the heat is more concentrated than in square hives, where it evidently must be weakened by being dissipated in the corners. In the latter I used always to be obliged to remove the outer combs to prevent mouldiness during winter.' Here then is a direct issue, and while venturing to offer a few suggestions in this regard, may I be allowed to say that I do so in no partizan spirit, but with the idea expressed by yourself in the prospectus of the then proposed *Journal*, that by friction of thought truth may be eliminated. The question is one of great interest to all true lovers of the science which we desire to see advanced and is of the greatest importance at the present time, when most bee-keepers, worthy of the name, seem to have made up their minds as to the vast superiority of the bar-and-frame principle, and so many are bending their energies either to modify existing hives, or devise new ones truly in accordance with the instincts and requirements of the bee, while affording the greatest possible facility for all the varied manipulations of profitable bee-keeping or scientific investigation. A question seems to me to underlie the matter of hive-shape, which will repay a little thoughtful consideration. I refer to the shape of the cluster, for if we can satisfy ourselves as to the reason of bees hanging as a swarm, and clustering for comb-building in a mass approximately globular, we shall possibly have advanced a step in determining to what extent it is necessary or desirable that the hive should conform to its outline.

If a contention arise in our streets, and the disputants be surrounded by onlookers, these latter will arrange themselves in a ring, simply because each new arrival on inquiring 'What is the matter?' will seek a point where he may stand nearest the centre of attraction, and get the best opportunity of seeing for himself. The result is, that additions to the crowd are always made where it has its least diameter, so that the effort of each individual to get to the centre obliges the mass to be circular. Transfer in imagination our crowd from the street, where it can collect only in one plane, to the air where this restriction would be removed, and

we see at once that for the same reason it would have impressed upon it a globular form; and can we be wrong in concluding, that during swarming the instinct of each bee impelling it to identify itself as closely as possible with the general mass, is the presiding cause of the spheroidal shape which every swarm assumes; and that the necessary high temperature for wax producing, driving the bees towards each other for mutual warmth, produces the same result in the cluster? Both the swarm and the cluster should theoretically be perfect globes, but, in the one case, the form is always elongated perpendicularly by the action of gravity, while, in the other, the support given through the solidity of the mass by the combs almost preserves it from this interference. If here we look through our bees beyond them, can we avoid reflecting how truly is all nature one? The soap bubble owes its sphericity to the mutual attraction of the particles composing its pellicle. The raindrop takes its form from a similar cause to that which shapes the burning sun, the silvery moon, the twinkling stars, and the earth on which we tread.

We now ask. Is this globular form the best? or, in other words, does the blind instinct of the bee lead to that which a perfect knowledge of the laws of nature would dictate? The answer is an undoubted, Yes! In No. 2, Vol. I. of the *Journal*, the interesting fact is explained that the bee builds its comb with the least possible amount of material, with the greatest possible strength, and in the least possible space; that the most accomplished mathematician reaches with labour what the bee does blindly and at once. But are we to suppose that in the matter of comb-building alone, instinct is a perfect guide? Assuredly not! Nor is it difficult to discover advantages in the form of the cluster which no other shape could supply. By example,—if we ask, 'How shall bees be arranged to enable them to shelter the largest amount of brood, to cover the greatest surface of comb, or to retain their temperature with the least loss of heat either by conduction or radiation?' The answer in each case must point to the sphere as yielding these advantages in the highest degree.

Let us now submit these assertions to the rigid test of calculation, which we will uniformly refer to a hypothetical hive-population filling 1000 cubic inches. The most dense and compact rectangular form is the cube, and if its content be that indicated above, its edge will measure 10 in., while its sides, of which there are six, will each have an area of 100 square in., making the total area 600 in. This mass of bees, however, if spherical, would have a diameter of 12 1/2 in., and the surface of such a globe, found by multiplying the

circumference into the diameter, would be only 483 in.; and as 480 is exactly  $\frac{4}{5}$ ths of 600, we might roughly say that the loss of heat from a cubical and globular mass of the same solidity, i.e. containing the same number of bees, would be represented by 5 and 4 respectively; or, in other words, *caeteris paribus*, 5 lbs. of honey would be required as heat-forming food in the first case, where 4 lbs. would be sufficient in the second.

Nor does this loss of heat and consequent loss of food at all represent the whole of the disadvantage, for in the cube the corner bees would stand at  $8\frac{3}{5}$  in. from the centre, while in the globular form the outside ones would occupy a position no more than  $6\frac{1}{5}$  in. from it. These, or similar considerations, together with the observation that never in an open space is a cluster other than convex in every part, have led, probably, to the idea that the hive ought to have the same model; and so it happens, as a 'Renfrewshire Bee-keeper' says, that 'all the best of the old writers on the subject are agreed that the nearest approach to a sphere (an octagon) is the most suitable shape.' Your contributor is undoubtedly, as his letters testify, an acute observer, and here he wisely does not give us the opinion of the old writers, even though they be the best, as a finality, but adds his own experience, together with a statement that in square hives the heat 'evidently must be weakened by being dissipated in the corners.' It is to this statement that I venture to take exception, leaving the old writers, who give us no reasons for their opinions, to those who lean upon the opinions of others, since they have none of their own.

Probably the square hive to which reference is made, was upon the bar-frame principle, and had, as was universal, a space between the crown-board and the bars. If so, this radical defect, as damaging as it is unnatural, must plead guilty to having caused the dampness of the corners. But since I dilated at some length upon the evils resulting from this most crying error in the ordinary bar-frame hive in a recent number of our Journal, the arguments there adduced may be understood as expressed here, while we may devote ourselves to some other points not as yet debated.

If a straw skep be turned up in the winter, the bees will generally be found congregated in from two to four seams, the collective width of which will almost always be found less than their length. The circular form is not now retained, for the obvious reason that the combs on the sides of the cluster give a most effective shelter, whereas the edges of the seams are fully exposed to the cooling effects of the circulating atmosphere. The

marvelous protection that the side combs afford, we shall the better understand if we remember that the individual cells are either filled with air or with store. If the first, the narrowness of the cells prevents anything like a free circulation of the air they contain, and its high non-conductivity makes the loss of heat through the combs from the outside seams extremely small. If the second, the bees are as well secured, as honey thickens with a low temperature, and can only be heated by what is technically called convection, i.e. each particle taking up its caloric for itself and then rising to be replaced by some cooler portion. But, further, if bees receive any check in comb-building by a cool atmosphere forcing them to contract the field of operation and hang more closely to each other, we find that they subsequently become more willing to increase their combs in length than in number, because they are now laterally protected. This abandonment of the circular form in winter, and often during comb-building, for one approximately elliptical is clearly justified by the considerations just given, and at least tends to throw doubt upon the suitability of the hexagonal form.

But in giving preference to the regular polygon, has not the fact been overlooked that bees are not stationary in the hive during the winter, but make a slow progression towards the bulk of their stores? Apiarians well know that the cells as well as the spaces between the combs are filled in winter by bees, and that they lie in a densely congregated mass in close contiguity to their honey, which is kept warmed by heat slowly diffused from the cluster. During long-continued cold, the consumption of food, as indicated, gives the mass of bees new cell-space into which to thrust themselves, so that they gradually gather up, as it were, on the one side and move towards the reducing stores on the other, and then usually draw from the mouth of the hive towards its back. If then the winter cluster be elliptical rather than circular, and this ellipse move along in the hive in the direction of its longer axis, it cannot be claimed that the Stewarton in any sense fits the mass of bees, nor can it afford them any better all-round protection than an oblong or square hive. In a correctly planned hive the heat gains no access to the corners except the bees occupy the outer interspaces, and then the elevation of the temperature of the store near the corners follows as a matter of course, and is also highly important. The heated air should rise from each seam of bees and fill the space between it and the hive roof, by which means the honey will be kept warm and ready for immediate consumption. Cogent reasons can be given for not

having this space too deep, quite apart from the extreme weight of the combs being sufficient to break them down in warmer weather; those who have seen bees building in roofs and wide open spaces, testify that their combs are usually very long in comparison with their depth or number.

The shortness of the central bars in the Stewarton appears to me to be a grave objection, because the store in such spells of cold as are not uncommon in the north get consumed in the combs covered by the bees, while the very power which they possess of husbanding heat will keep the outer ones which might be filled with purest honey so icy cold that the bees will be unable to touch them, and they may then starve close to the abundant spoils of their industry. Not long since a comb had inadvertently been omitted from the centre of a

prosperous hive too late in the year for the bees to resupply it. They wintered on one half the store, which they completely consumed, and then died within a few inches of abundance, contact with which would have chilled them to death. Is not the cause of bees apparently starving, when, as we often read, the hive contains plenty of honey, frequently the one indicated? In conclusion, when we consider that rectangular bar-frame hives are cheaper, more easily constructed, and of greater strength than others, and that they give greater facility in management on account of the interchangeability of their frames, stronger reasons than any I have been able to imagine, alone can render it advisable to adopt either the hexagonal or octagonal form.

—F. Cheshire.

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## THE OCTAGON FORM OF HIVE:

Moving from a Square to a Octagon Hive

Vol II #18 October 1874 page 101

I perused with much interest your scientific and talented correspondent, Mr. F. Cheshire's contribution in the September Number on the 'Philosophy of Hive Shape,' and regretted to find the general scope of the article rather tended to disparage my favourite hive the Stewarton.

Coinciding with another contributor, Mr. Walter Hewson, who remarks in last No. 'that Octagon hive question has been pretty freely discussed; and I think may as well be allowed to drop,' I would only seek to reply shortly to one or two points; and in so doing will try to avoid all pedantry, remembering many of your readers are plain working men, consequently I would seek to avoid any unnecessary irritation of the 'pellicle' of their craniums.

First, then, it affords me pleasure to learn that that feature of the Stewarton Hive, admitting the honey gatherers of the end combs to the supers, is now generally adopted in the hives of the advanced bee-keepers in the south, as in the days of my noviciate I failed to find the plan referred to in any work I could lay my hands upon, and felt complimented when one of the most experienced and thoroughly practical of English apiarians thanked me in the *thou Cottage Gardener* for making it first known to him.

Your correspondent's comparison of the clustering bees to a crowd is exceedingly beautiful and good, while his figures surely do not bring out the superiority of the cubical form of hive. But the main point where it

would appear my unfortunate experience does not square with his philosophy is, with reference to bees wintering better in octagon than in square hives; and to which point I would seek to address myself.

Shortly after the commencement of my apiarian career, feeling annoyed, at the early spring examination, to find the end combs of my square hives damp and mouldy, I complained to one or two leading southern apiarians; and it was rather soothing for me to find I was not singular in my experience; I was recommended to do as they did, and remove one or two outer combs on either side, at beginning of winter, which plan I adopted, but unfortunately these removed combs, carefully wrapped up in paper, got brittle and easily broken, mice gnawed them, and moths found in them a congenial rendezvous into which to deposit their eggs; and then my poor favourites had such a cold blank look on either side their works, so much so I meditated cutting grooves at back and front inner side of their cages, to hold thin moveable partitions of wood. But how was it my Octagon hives did not show an equal amount of dampness? I never required to remove a comb from them, I could not saddle the blame on the crown-board with the intervening space between it and the bars, as your correspondent seems led to suppose, as that was a description of hive I never cared to adopt, back being top, exactly alike with slides only. I know the apiarian fathers laid down the law as to the superiority of the Octagon to the square form, to prevent the honey in the outer combs crystallising, with consequent deleterious effects following thereon. But what did occur to me at the moment as a plain commonsense solution, seeing both descriptions of hive



were of one depth, as well as width at their greatest extremity, with this difference that these outer corners were cut off in the Octagon form, reducing the internal dimensions by a good many cubic inches, into a considerably smaller domicile, that, assuming the population and store were equally alike, on the principle that a certain amount of fuel will make warm and comfortable a small room, while the same quantity must necessarily fail to heat to the same temperature the extreme corners of a larger apartment, hence, as a sequence, the better kept combs in the Octagon, and the earlier commencement of breeding, which proceeding thereafter at an ever-progressing ratio, with consequent better results at the season's end, caused me ultimately to abandon the square, and adopt the octagon form of hive.

I liked the Stewarton Hive, too, from its freedom of any arbitrary dimensions, I could super and nadir it *ad infinitum*, in keeping with the wants of the season and

the several queens' productive qualities, thereby preventing swarming; rarely did my colonies require feeding, in the very worst seasons there was always some honey, in the good ones a very great haul.

In conclusion, I regret very much to learn that the bee-keepers of the cradle of the Stewarton Hive, Ayrshire, failed to combine to send up their finest Octagons to the Crystal Palace Show, supposing their works of high art would be better appreciated at local competitions, and find a readier market near home; and I therefore fool all the more indebted to two of their number, Mr. Jas. Anderson of Dairy, and Mr. Alex. Ferguson of Stewarton, who at considerable sacrifice of time and expense did take up what they had, to give our southern brethren an opportunity of inspecting some fruits of the Stewarton Hive and system, and convince them that the benefits derivable therefrom are a reality and not a myth.—

A Renfrewshire Bee-keeper.

### THE OCTAGON HIVE:

Is it a New Hive After Improvements?

Vol II #22 November 1874 page 122

The able advocacy of the 'Renfrewshire Beekeeper,' backed by the splendid supers from Ayrshire, exhibited at the Crystal Palace, has no doubt made the 'Stewarton hive and system' famous over all England. But from the account given by that gentleman in the Bee Journal, which I read only a short time ago, I should say he is much more entitled to be regarded as the inventor of the system and an improver of its boxes than Robert Kerr, of whom I know little or nothing.

But it appears Kerr was an enthusiastic beekeeper; and I would ask, Is it likely that a Scotchman apiarian could be interested in our common hobby and not be acquainted with the work of Robert Maxwell, where we find a complete description of the way to make octagon—shall I say 'Stewarton'—boxes, with single sliders, to enlarge, contract, or entirely shut the communication between them? Was it from finding a single slider unsuitable that the idea occurred to him to employ several?

As to the inventor of the octagon boxes, I am satisfied so far with the 'Renfrewshire Bee-keeper's' answer. But I would like if he had passed beyond

'strong presumption,' or the strongest, and said, without fear of contradiction, that 'Christ. Wren' was the inventor; that the old book, purchased by Milton at Strawberry Hill, was 'The Reformed Commonwealth of Bees, presented in several letters and observations to Samuel Hartlib, Esq.,' and contains Wren's letter to Hartlib, with the 'figure and description of the transparent bee-hive.'

The late Mr. Woodbury described this so-called transparent hive, after perusing Wren's drawing and description, as consisting of 'a set of three octagonal boxes, placed one on the other,' and is scarcely to be distinguished from the modern Stewarton hive, except in respect to the means of intercommunication between each, which consists of a central aperture, instead of bars.

The 1 1/2-inch bars, for brood-combs, as employed by Kerr, having been wisely reduced by the 'Renfrewshire Bee-keeper' to 1 1/8 inch, appears to leave nothing that can be claimed by Kerr but the slides; and therefore, like his English namesake, I only look upon him as an improver, with this difference, that his improvement is universally approved of by all sensible apiarians.--- Questioner.

## THE OCTAGON HIVE:

Improved Not Reinvented

Vol II #20 December 1874 pages 136-137

It affords me satisfaction to congratulate your correspondent 'Questioner' on being the first (if we except Mr. Wm. Carr's futile attempt to elevate Rusden into undue prominence) who has responded to the appeal made by me in the third number of this periodical for aid to elucidate the origin of the above hive.

Although possessing a tolerably extensive collection of works upon bee-keeping, and several of considerable antiquity, I regret that the number does not include 'The Reformed Commonwealth,' nor yet Robert Maxwell's book, and consequently anticipate with pleasure 'Questioner' laying before your readers the data by which he appears to be able to prove that the first named volume was the old book purchased by Milton at Strawberry Hill, and by reproducing 'the figure and description of the transparent bee-hive' of Wren for comparison with what Geddie laid claim to have invented, and for which he obtained his patent from Charles II.

I, however, regret very much to find that your correspondent, fresh from a perusal of the late discussion, has found my contention in favour of Robert Kerr's claim to the invention of the Stewarton hive and system of bee-keeping so ineffectual, that he appears to coincide with the view enunciated by my opponent,—beyond the slides there is little or no credit due to Kerr, and rates him as an individual of whom 'he knows little or nothing.' It was for that very reason I was desirous to prevent the name of Kerr sinking into oblivion, by recording what his hive and system had done for bee-keeping in the opening volume of the *British Bee Journal*; that is best judged by its results; and should 'Questioner' chance to be 'a brother Scot,' he will possibly excuse the national habit of answering one question by asking another,—Would your correspondent kindly point out, where in the writings of Wren, Geddie, Rusden, Thorley,—and may I venture to add Maxwell, too?—is any, the most distant, reference made to those 'splendid supers,' which so delighted your correspondent, and which, to use his own expression, 'has no doubt made the Stewarton hive and system famous over all England? 'Are they not the' separate honey condensers,' as I put it, which place the name of what Kerr did for beekeeping on a par with that of Watt for steam?

Suppose, for the sake of argument, that several bee-keepers, each possessing one of the above writers' works and no other, and guided by it alone, determined to come forward with the fruits of their several octagon colonial systems to the late Exhibition to compete, and where would they have been against Mr. Jas. Anderson's first prize table display? He very probably never read any of the above treatises, his knowledge being acquired in early youth by oral instruction from the lips of Kerr, who made his first boxes; the produce of the older Octagon hive would simply be the blackened distorted brood-combs of no better than three Pettigrewian big skeps in wood set upon one another, 'the single slider' communication being exactly similar to what we usually meet with in divisional communications in poultry-houses.

The opinion of the late Mr. Woodbury, that the hive of Wren 'was scarcely to be distinguished from the modern Stewarton,' only went to prove that that distinguished apiarian knew little of the more modern hive, and less as to its manipulation. When doing the bee editorial of another journal, he owned as much in correspondence, sending the present writer the queries connected therewith for replies. If your correspondent, 'Questioner,' casts his eye on the opposite page from where his last interesting communication appeared, and note the very pertinent query of F. R. L., as to why the bars he saw in the Stewarton supers at the Palace were so much wider than those of Woodbury supers, lie would, from my stand-point, reply, that the bee, invariably storing honey in the upper portion and outer combs, to economise space and material, increases there the depth of the honey-cells; consequently, for this reason, and the richer and more massive appearance of such combs, the bars of supers and sides ought to be much wider than those in the breeding department. Despite Mr. Woodbury's superior culture, light of later improvements, and familiarity with 'modern German thought,' Kerr, with probably little else than the habits of our little favourites to guide him, judged merely by the supers our departed brothers have respectively left behind them, comes out the abler apiarian of the two.

'Questioner' has been kind enough to give me credit for effecting improvements in the Stewarton hive, these I have all along felt to be subsidiary to the first principles of the hive as I found it,—mere finishing touches, if I may use the expression to gratify a desire for completeness of things in my own apiary. Not being numbered with the busy throng, who have something to 'push,' I felt when first I beheld the trophies of the

Stewarton system, what I dare say many a fellow-apiarian did on gazing at the first and second table displays at the Palace, that, notwithstanding a pretty good acquaintanceship with bee literature, I had something yet to learn of which it did not treat. I went to Ayrshire, and assiduously acquired the lessons most fraternally afforded by the brotherhood there. The result

far exceeded my most sanguine expectation; and since, my pen has been ever ready to champion the good cause; and, as a result, one maker thankfully wrote to me, that he now turns out as many as one hundred sets of boxes in a season, thus showing that others are now freely sharing, the benefits experienced by

—A Renfrewshire Bee-keeper.

## THE OCTAGON HIVE:

### Questioning of the First Octagon Hive

Vol II #21 January 1875 pages 151-152

Through the kindness of Miss Davidson of Tunbridge Wells, I am enabled to present the 'Renfrewshire Beekeeper' and others with the figure and description of the hive used by Sir Christopher Wren. Some words which I am not sure of having deciphered correctly are underlined, and will, I hope, be printed in italics. I cannot at present verify the spelling—owing to a copy of Hartlibb, which I would have borrowed for the purpose, having been unfortunately used for waste paper—and the work is not to be found in the best libraries of either Edinburgh or Glasgow. As to the data on which I ventured to hint that Milton copied from Hartlibb, it is, perhaps, sufficient to say that there is no other *old bee book* that I know of in which he could have found Wren's letter.

Whether Milton copied incorrectly, or quotations are made from Milton incorrectly, I leave to others to determine. But the letter of Wren, as originally printed, is dated not 16th but 26th of February, 1634, and it concludes thus:—

'We must rather desire of you' (Hartlibb) 'farther light in this business, which, I presume, you can afford us from other men's observations that have tried the like experiment, for yet, you see, ours is imperfect, and we know not what to make of it.—Sir, I am your most obedient humble servant, Christ. Wren.'

'A B three octagonal boxes in all particulars of one shape and size,

c a hole in the top which is the same in every.

D a cover the same to every hole turning upon a pin.

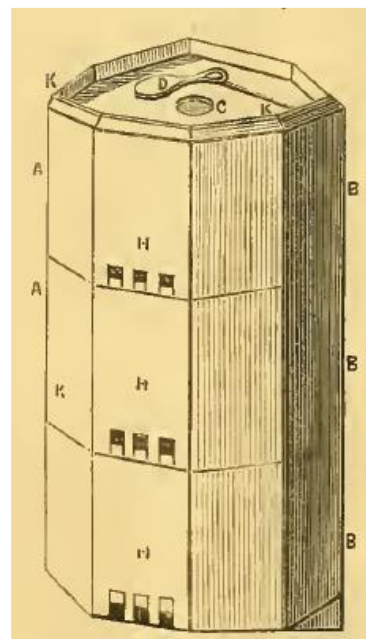
E a wire which pulls the cover to close it upon occasions.

G G G holes through which the ends of the wire appear.

H H H the doores every one to be opened or shut by little slides, the lower doores are open, the others shut.

K K K the upper edges of every box sloped away *lowerdly*, the bottoms are likewise sloped away correctly that one box may fit to any of the other two.

M a little key made to screw on the ends of wires y<sup>e</sup> appear in the holes, by that means to close any of the holes in the sides. Behind opposite to the sides *h h* are doors that open with hinges and *bolts*, about four inches one way and six the other, and within each piece of dear glass cemented to the inside of the box to look in upon occasion.



Each box is lined with rush mat: it stands in a case of *these*: that serves both as a stock and a covering to it.

'This is the sketch of the hive sent by Sir C. Wren to M. Hartlibb.'

After examining all the evidence within my reach, I have reluctantly come to the conclusion that the claims of Wren to be the inventor of octagon hives are without foundation. Can the 'Renfrewshire Beekeeper' state whether the Dr. Wilkins, Bishop of Chester, to whom Rusden refers, was the same with Dr. Wilkins, Warden of Wadham, at, or prior to, 1653; if so, there can be no difficulty in determining where he got his model. Apart from the slides invented by Kerr, what is original, and what is there in the Stewarton system as to principle and practice that was not in full operation before 1819?

—Questioner.

THE OCTAGON HIVE:  
The Lineage of the Octagonal Hive  
Vol II #22 February 1875 page 170

It affords me pleasure to heartily thank your correspondent, 'Questioner,' and through him Miss Davidson, of Tunbridge Wells, for so kindly favouring us with the drawing of the transparent hive referred to by Wren, which, if we except the central communication being circular, instead of square, appears to be exactly the counterpart of the hives of Geddie, Rusden, and Thorley, and, as I strongly suspected, the 'splendid supers' of the 'Stewarton hive' of Kerr formed no part.

I must own to a feeling of disappointment that 'Questioner' did not step forward last month and clear up the mystery which shrouded the invention of the Octagon Hive, as, from the hints thrown out previously, he seemed in a position to do so.

Your correspondent throws a doubt on the accuracy of my quotation from Milton, which is uncalled for, as I reproduced these exactly as they appeared in his work, and I previously hazarded the opinion that that author was a careless compiler, from his having omitted the name of the old book, together with the drawing and description of Wren's hive, as well as the name of the party to whom Wren's letter was addressed, through the columns of a contemporary. I have had recently an opportunity of comparing that letter, as extracted, along with the drawing, from Hartlibb's book, and find its date to be February 26, 1654, instead of February 16th, as given by Milton :—"Prompted by mine own ambition to find any way to show myself a savant to a person so eminent among the ingeniouise as yourself—the word '*savant*' in this sentence Milton translates into servant; then a little on, '*Last May, as I remember*, we put in two swarms together.' The first five words underlined by me do not appear in the original; but to pass over several other verbal changes, the most inexplicable alteration takes place in the closing sentence, 'You can afford us from other men's observations that have tried the like experiment, for yet you see ours is unperfect, and we know not what to make of it,' is altered by Milton into 'You can afford us from the observations of others who have tried the like experiment for us, yet you will see ours is imperfect.'

I some time ago proved that Rusden did not invent the Octagon Hive, neither did Geddie, although he was generally accredited with it, from having obtained a patent from Charles II. Both these apiarians had first seen the hive in the possession of Dr. Wilkins, Bishop

of Chester; this we had on the authority of Rusden. Then arose the question, Was the bishop the inventor, or who? as I put it at the time, I feared it would have to remain an open question. Then came Milton's account of the very old book on bees he purchased at the sale at Strawberry Hill, containing Wren's letter, with drawing and description of his Octagon Hive, twenty-two years before Geddie obtained his patent, and as the inventive genius of Wren was very great, and his biographers tell us, many of his inventions were subsequently pirated, and being too upright a man to describe the invention of another as 'Our three storied beehive;' and according to Milton's version of the latter parties having 'tried the like experiment *for us*,' coupled with the hive being in the possession of Dr. Wilkins, Wren's early patron, all tended to the strong probability that Wren did invent the Octagon Hive; more particularly this view was materially strengthened by Milton leaning to the hypothesis while apparently familiar with Hartlibb's book, from which he quotes, placing the Octagon Storifyers in the following order: Wren, Geddie, Warden, and Thorley, which, too, lead to the inference that the very old bee-book he picked up at the sale was *not* Hartlibb's, still Wren's letter turning out to be addressed to Hartlibb, the likelihood, despite Milton's silence, it was the very book; and the latter author's motive for withholding this, and altering the text of Wren's letter, I am at a loss to conceive

To a subsequent issue of the contemporary alluded above (*Agricultural Gazette*) I am indebted for the copy of a portion of a most interesting letter which throws much light on the point at issue written by Mr. William Mewe, minister of East, lington, in Gloucestershire, to Mr. Nathaniel Angelo-Fellow of Eaton College, and dated 19th September, 1653.

'Sir,—Being made known to you, I could wish it had been by a better character than a bee-master. Tis true, since I left the hot service of the City, I have an apiary in the country, wherein I find profit enough.

I observed many rarities of their work and government by mine own experience upon Butler's observations.

'But when he told me of a gentleman in Plinie's time that endeavoured to make their works transparent (but as he thought improbable), I tried and finished that essay to the satisfaction of myself and others.

'The invention is a fancie that suits with the nature of that creature; they are much taken up with their graudeur, and double their tasks with delight.

'If you desire the model or description, I shall give the same to you I did to Dr. Wilkins, Warden of

Waddham, and who hath with great curiosity set up one in his garden, and, as I hear, is setting up another with great augmentations,' &c.

The writer of the article in the *Gazette* concludes from his examination of Hartlibb, a work I long much to see, that the invention of the Octagon Hive is due to Mewe, and concludes as follows:—

'That Mr. Mewe, therefore, divided the transparent Octagon Hives of Wren, Warden, Geddie, and Thorley, which were modified according to the different tastes of these older apiarians, we think there can scarcely be a doubt. He was recognised at the time he lived as the "father of the invention," and, I may add, his colonies in two-storied dwellings,' c&c.

A Renfrewshire Bee-Keeper.

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### THE STEWARTON SYSTEM:

Three Questions on Management  
of the Hive

Vol III #20 October 1875 page 125

The 'Renfrewshire Bee-keeper' in the opening numbers of the Bee Journal gave a most interesting account of the Stewarton hive and system, but there are a few points upon which I am anxious for further information:—

1. Are covers necessary except at top; and if so are they made in sections to correspond with the body boxes, or how are they adapted for storifying? Would it not be possible to have the hive walls double or made thicker, a fillet of wood nailed on at the bottom of each section to project downwards and over the joint so as to keep out wet, and then to cover all with a milk-pan?

2. How is a stock treated in spring? Is the super put on first, and when partly filled the third body "box" added below all, or is this last added before the super?

3. How do the bees store their honey in the three sections? Do they treat the three as forming one hive, and store honey in the upper one as they would in a comb 18 inches deep, or is the honey stored at the top of each section as if there were three separate hives? If the latter, would it not be possible to winter three separate colonies, one in each section, placed one above the other for warmth, ventilation going on through all three, and by uniting in spring to secure one strong stock, and two surplus queens? A few hints from the 'Renfrewshire Bee-keeper' would greatly oblige—

H. Jenner Fust, Jun., Hill,  
Falfield, Gloucester, Sept. 11, 1875.

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### THE STEWARTON SYSTEM:

Answers on Management  
Vol III #21 November 1875 page 140

It affords me much pleasure to reply to the queries of Mr. H. Jenner Fust, Junr. in last month's *Journal*, anent the above system.

1st As the Stewarton hive is formed of wood five-eighths of an inch thick, it is imperative it be externally protected from the weather by an outer casing or other means; a light-wooded hive, from its greater porousness and handiness for manipulation, is much preferable to those formed of thicker stuff. The present writer's covers are formed of  $\frac{3}{4}$  inch wood, 26 inches high by 18 inches wide, inside measurement, dovetailed at corners, and joined in one stretch, rest on, without being attached to mahogany floor-boards, kept in position by a moulding round base; some are of square and some octagon form; tops are detachable, and covered with

thin zinc to keep them watertight at joints, are well ventilated and painted, with ornamental vase at apex, as figured in No. 13 of this periodical (May, 1874).

2nd. As a rule, the third body-box requires to be added below to increase the breeding space before any flow of honey sets in calling for super accommodation, which it is worse than useless to give before it be required.

3rd. With straight combs and uninterrupted communication between the bees, I invariably treat the Three sectional divisions as one, storing the honey in upper box, but by a timely and continuous supply of super space, in advance of their wants, the skilled apiarian displays the better generalship who can tempt his favourites to store the much greater part of their honeyed store in the supers.—

A Renfrewshire Bee-keeper.

## THE STEWARTON HIVE AND SYSTEM:

A Testimony of the Truth of the System

Vol IV #42 October 1876, page 114

The merits of the Stewarton Hive and the mode of manipulating it, have been so fully and ably treated of by 'A Renfrewshire Bee-keeper,' that it may perhaps seem superfluous to write more upon the subject. However, as I was induced to test the capabilities of the system, in consequence of his testimony, others may be led to do the same, when they see the results which I have obtained by carrying out his instructions.

In the course of twenty years, I have never obtained more than 60 lbs. of super honey from one bar, or bar and frame hive, and have frequently been annoyed by the intrusion of the queen into the supers. This annoyance has never occurred with my Stewarton boxes. One set has yielded 144 lbs. of most beautiful super honey this season. A second set of boxes from which a swarm was taken, has given me 75 lbs. of equally pure virgin honey-comb, free from the slightest trace of brood or pollen, sealed and filled in the most perfect and beautiful manner.

The Stewarton plan of putting empty supers on the top of those which are partially filled, answers most admirably. The bees work out from a centre, without break or interruption; and thoroughly fill and complete the lower boxes, whilst they are extending their operations in the upper ones. When the lower boxes are completed and have been removed, the upper ones will probably be more than half filled, so that when the latter are brought down upon the top of the stock, the queen finds it impossible to lay, owing to the depth of the cells, even when they are not filled with honey, if she by chance wanders into the super.

The hive referred to, consisting of two 7-inch body boxes was supered with two supers early in June, and the bees soon took possession of the boxes; but as honey was not then very plentiful made comparatively slow progress, and as the hive did not seem crowded, I did not think it advisable to give extra accommodation below.

On the 11th June a large swarm issued forth, which was hived in an ordinary straw skep, and as soon as the bees were settled, they were carried down into the

cellar; lest some of the numerous vacant hives, in which the bees had died during the winter, should tempt them to decamp. Having thoroughly examined the stock and removed the royal cells, I returned the swarm to the parent hive. A third 7-inch body box furnished with pieces of worker guide-comb was now placed below the stock, and two additional supers were added at the top. The bees at once set to work in earnest, so that a fifth super was added on the 4th of July. Finding that the three lower supers were quite full, they were removed upon the 11th of July and two empty ones put on the top of the pile. Two completed supers were removed on the 26th July, and the two remaining ones, partially filled, were taken off upon the 6th of August. The results were as follows:—

July 11th, 3 supers	68lb.
“ 26th, 2 “	41”
August 6th, 2 “	35”
Total	144lbs.

of perfectly pure virgin honey-comb. Five of the boxes were thoroughly filled and sealed. A sixth was nearly completed, and the seventh was filled with comb, and two-thirds filled with honey. All the comb, with the exception of a little guide comb in the first two boxes, was made by the bees this season. The other boxes were only supplied with strips of plain wax-sheet (not embossed), about  $\frac{3}{4}$  of an inch in depth, fastened along the centre of each bar, to secure straight combs. No feeding, or extraneous aid of any kind, was given to the bees, but all the materials used were fairly collected from the field by these indefatigable workers. No credit would be due to either bees, or bee-master, if supers of 3 or 4 cwt. were filled in the manner advocated by Mr. Pettigrew; and the knowledge that such practices are carried on, makes many persons skeptical, when they see fine supers, which have been fairly and honestly filled, and which are the results of a really good system of management. After the removal of the supers, the stock (three body boxes with floor-board) weighed 80 lbs. gross. My bees are all pure Italians. —

J. E. Briscoe, Albrighton, Wolverhampton.

## THE OCTAGON HIVE:

Early Storifying System  
Vol V #50 June 1877, page 35

I have read Mr. Carr's and the 'Renfrewshire Beekeeper's' account of early storifying wooden boxes, and doubt whether Rusden or Gedde were the inventors of the first set of boxes.

In the second edition of *Apiarium, or a Discourse of the Government and Ordering of Bees, with their Nature and Properties*, written by J. Worlidge, gent., with copperplates, 1678, he says :—

'Therefore make a box or hive of about 8 inches in height in the inside, and about 12 inches broad, 4 square, close at the top, open at the bottom, with a square of French or Dutch glass on each side of 4 inches broad and 5 inches deep, so grooved that no air may pass through the sides of it. Then make another box or hive of the same depth, and about 6 or 8 inches

broad. You may make a third box or hive of about 2 feet over, or more, but of the same depth as the former.

'The first of these boxes you may take a swarm into it at swarming time, and set it in its place where it is to stand. When you perceive it near full add the second box under it, placing the first on the middle of the undermost. The next day will part of the bees take to their new box, but the greater number will continue their former employment until they have quite filled the upper. Then they will fall to work in the lower, and it is probable they may fill that also. As you find occasion you may add the third, and so a fourth or fifth,' &c, &c, &c.

The above being extracts from the second edition of the work it is possible the first may have been printed earlier than 21st July, 1673; or Mr. Worlidge might have worked the storifying system years before he thought of publishing his experience.

---Tuos. H. Boutell, Sleaford

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## THE STEWARTON HIVE AND SYSTEM:

Detailed Description and Management

By the 'Renfrewshire Bee-Keeper.'

Vol V #55 November 1877 page 126-127

The Stewarton Hive, as I first found it, consisted of three octagon breeding, or, as locally termed, body boxes, 14 inches wide, by 6 deep, each furnished with seven bars, 1 1/2 inches broad, the 3/8 spaces between, filled with moveable slides of wood, working in grooves in the bars, with a shuttered window back and front, handles to lift with, hooks to weigh with, and little buttons to prevent displacement. In the centre, across from side to side, was fixed a half-inch square bit of wood to support the combs, the one or two supers, or honey-boxes, were exactly alike, but only 4 inches deep, and without the cross stick, all neatly dove-tailed at the corners—the whole forming one hive, which is usually described as a 'Stewarton Set.'

My earliest acquaintanceship with bee-keeping began, as will afterwards be alluded to, with moveable bars and the nicest calculations as to their distances apart, from centre to centre, were made, where our little favourites had ample space to work at their own sweet will; and every true student of Nature must follow humbly in their wake. I had also a very great repugnance to the mode in which my new hives were divided. The broad 1 1/2 inch wide bars of the supers were all right enough, and a capital idea, too, which I had never met with in the 'authorities,' as the thicker

and more massive the honey-comb the more striking its appearance; besides, the additional depth of the cells renders them unfitted for brood, should the queen unfortunately find her way up at any time into them, and their extra shallowness, as honey boxes, is a similar preventative against their being so employed, while conducing most materially to the better classification of the honey harvested. The only fault I had to find with them was the fixity of the bars; the sprigs with which they were nailed I had at once withdrawn, and 1/2-inch brass screws were substituted. But 1 1/2-inch wide bars for brood-comb in the breeding boxes were a manifest absurdity, and I had them removed (saving the outermost at either side), as these, in whatever description of hive employed, are invariably used for storing honey, but condemned the other five, and in their place fixed six bars 1 1/8 inches broad, with screws. I increased the depth of boxes from 6 to 7 inches (the latter being the depth of the square hives I had previously used), and I need not hint, but to the beginner, the desirability of keeping up, as much as possible, strict uniformity of dimensions in whatever description of hive employed, for the interchange of combs and other reasons. My present strong octagon stocks during the season are wrought with two 7-inch breeding boxes, and a 4-inch eke. Finding an entrance of 5 inches long by 1/2 an inch deep inadequate to vent the bees of such populous colonies at the height of the season, I opened a corresponding one in each of the octagonal divisions, on either side of the front one, with

the very best results, from the increased freer egress and ingress thereby afforded to the teeming populations, besides the exhilarating effects of so much fresh air, caused a considerable saving of labour power in fanning, to be more beneficially employed in the storing of honey.

The general mode of manipulating the Stewarton Hive is to lash a couple of the breeding-boxes together at the weighing hooks with cord, after the bars of the boxes had been duly furnished with comb, or embossed wax-sheet, run in the sliding door of the upper, withdraw all the slides of the lower, and close the openings with the little pegs accompanying the boxes. With the free communication between, the two become to all intents and purposes one, and the bees may then be introduced—a prime swarm, of course. Some eight or ten days thereafter a second prime swarm, if procurable, is hived in the third breeding-box, and at once set down close to the earlier one, and at dusk the last named is placed on the top of it. The lower of the two first boxes—now the central—has its door run in, and the slides of the lowest are removed and pegged as before. Should the evening prove chilly, a whiff of smoke may be administered to both, but this is generally considered quite unnecessary, as it is a well-established fact that no bee leaves with a swarm till it has filled its honey-bag, and the lower ascends with a most confiding hum, evidently firm believers in the old Scotch proverb, 'Plenty freens when ye hae ocht.'

Mr. Alfred Neighbour's useful treatise, 'The Apiary,' if I remember, on this point teaches that the swarm to be added is first to be knocked out upon a table-cloth; the operator is to move the earlier swarm in the two boxes, and set them on a couple of bricks till the bees have joined, and then it is to be carried back to its stand. Now, knocking out bees on a table-cloth at dusk, with probably a falling dew, is a questionable proceeding at the best, and to so unite with a hive possessing the ingenious contrivance of the bar and slide of the Stewarton, most uncalled for. Suppose the operator be a novice, and after sundry thumpings on the straw skep to get the bees thoroughly out upon the tablecloth, he hurries off for the other hive, and in his trepidation as he bears it along, which is not to be wondered at, one of the watchful guards administers a sharp sting, causing him to wince; and if the boxes are put the smallest degree off the balance, down come the tender, soft combs, en masse, ere he may reach the cloth; or does he stand firm till then, and sets them down with anything like a sharp thud, a similar result follows; or if any of the straying bees are trod upon

accidentally, and the war-note once sounded, what a melee follows! Portions of the bees are apt to stray under the cloth and get chilled and lost, or a detachment might find its way up the operator's inexpressibles, and then what a kicking and rubbing will ensue! The great simplicity and facilities of uniting with the bars and slides induced me to order a quantity of these in lengths, along with the boxes, which I cut up and fitted to my other hives, and the reader would find the advantage of doing likewise.

But to return. The morning light reveals usually nothing but the surplus queen dead on the floorboard. The lowest box is then removed, and the entrance of the second again opened. Should any bees be clustering in the lowest, the removal can be postponed till the middle of the day, when the workers will be more abroad. The object of removing the third box is to restrict the room so that the combined swarms may all the sooner complete comb-building and packing to the glass, and be thankful to press up into the super which has been placed thereon, fitted with guide-comb. Communication between stock and super is afforded by drawing the outer slide on either side only. Should the weather be favourable, and honey abound, it is at once taken to; if not, it is better to run in the slides again and wait for a day or two, then, under more favourable circumstances, make a fresh trial, as it is a curious fact that bees often will swarm rather than accept a super open to them, and which they have previously rejected. Supposing, which is generally the case, the bees have taken possession; in a very few days white comb appears at the windows; then, and not till then, the third breeding box is placed as a nadir underneath all, its slides withdrawn, and pegged as at the union, and the doorway of the central box closed once more. The colony may now be said to be fairly under weigh; and should favourable honey-gathering weather continue, a second honey-box may be placed on the first, and all the slides of the first super withdrawn. To induce the bees all the more readily to take to the supers, I have found it of considerable advantage to run a strip of gummed paper round the juncture of the stock with the super as well as with it and succeeding ones, should it be taken to, or if honey be plentiful, a second slide on either side of the top box may be withdrawn, at first either partially or wholly. This is a nice operation, dependent on the flow of honey, and the bee-master must exercise his own discretion, so as, if possible, to prevent the incursion of her majesty into the super. The plan of admitting only the honey-gatherers of the end combs to the supers, to the exclusion of the queen, the nurses, and the pollen-



collectors of the centre, is a most ingenious, original, and indeed one of the most valuable features of the Stewarton system. A third and other supers may still be called for, and the additional super accommodation afforded, always uppermost, and in exceptional cases even additional breeding space by nadiring at bottom may be requisite, although the strong colony referred to in your last issue, was wrought with but 18 inches breeding space, while filling seven honey boxes or supers in various stages of progress. To get bees to take to supers at first, and to work in them steadily through the vicissitudes of temperature, it is indispensable that they be well wrapped up with some warm woollen stuff. I generally employ old crumb-cloths for this purpose, four plies thick, and need I add that the Stewarton hive being formed of wood but  $\frac{5}{8}$  of an inch thick, it is of course requisite, and must have the protection of a bee-house or shed from the direct rays of the sun; or, better still, an outer octagon case, with a nicely bevelled roof, and an ornamental vase on top, forms a most admirable adjunct of the apiary or garden.

So soon as the lowest super is seen sealed at the windows the attachments between it, and the stock and the second super severed with a thread, had better be removed, the next lowest taking its place and so on, till the end of the season. When all are removed, and slides re-introduced, then as cold weather sets in, and the lowest breeding-box vacated, it too is better taken away, the slides replaced, the mouth wrapped carefully up with paper to exclude moth and dust, and suspended in any cool, dry garret, till required the next season. To

obviate the accumulation of moisture, in a glass observatory stock, working in a staircase window I tried with great success fine India or Cuba matting to cover the slide spaces, and by the thorough ventilation thereby afforded, that colony successfully withstood  $25^{\circ}$  internal frost, as shown by the inside thermometer on the memorable Christmas Eve of the very severe winter of 1860 and 1861; and ever since I complete my wintering preparations by withdrawing all the slides from the topmost box, and tacking on an octagon of matting, bound round its edges to prevent rippling, and by these contrivances my little favourites come through the winter as dry and snug as in the most porous of straw skeps. The slides, of course, take the place of the matting again when breeding commences with the advancing spring.

At first I procured my boxes from a party who advertised and sold them, but from alterations I wished made in their construction, I was obliged to correspond direct with Mr. James Allan, cabinetmaker, Stewarton, their maker; and I understand the Messrs. Craig and Dr. Wylie turn out a good job, but personally know little or nothing of the manufacturers, my sole interest being to see I get good workmanship. One thing, however, I may mention, that our local tradesmen cannot make them to compete at Stewarton prices; and several I know, who are bee-keepers themselves, actually order their boxes direct from Stewarton, instead of making the attempt at turning them out at the extreme low prices at which they are procurable there.

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### THE STEWARTON HIVE:

On the Spread of the Stewarton

Vol V #57 January 1878 page 169

Your 'Renfrewshire Bee-keeper' deserves the thanks of all bee-keepers for his very lucid and able article on the management of the 'Stewarton Hive,' in the November number of the Journal; but as his remarks principally apply to those who are commencing its use he might perhaps be induced to favour us with something equally valuable and practical on its future management, and in such time as to enable us to make use of his instructions in the coming season.

Although the Stewarton had not been heard of in this neighbourhood before March, there are now no fewer than seven stock boxes tenanted by bees, distributed amongst four apiaries. The owner of one of them conducted his apiary on the principles advocated by Mr. Pettigrew, declaring that that gentleman was the

only sensible writer on bees in this country. He has, however, found reasons for considerably modifying his opinions, and he has given practical effect to the change by completely discarding the system.

For the introduction of the Stewarton into this locality I acknowledge my indebtedness to a valued and experienced contributor to the pages of your Journal. All the stock boxes and supers alluded to above have been supplied direct from Mr. Allen, of Stewarton; and I need scarcely add that, so far they have given us entire satisfaction, whether as regards exactness of workmanship, or ease with which they can be manipulated.

The honey season here has formed no exception to the general lament of scarceness. At the time when stocks ought to have had a good supply of honey laid up for the winter they were just at starvation point.—W. Cj Ilkley, Yorkshire.

THE STEWARTON HIVE:  
A Testimony to the High Honey Yield  
Vol V #59 March 1878 pages 199-200

Your correspondent 'J. W. N.' thinks that the results which I obtained by the use of the Stewarton Hive are not a fair test for ordinary bee-keepers. At any rate, they are a proof of what may be attained by using a really good hive, and carrying out the instructions of those who have by their success demonstrated the excellence of their system.

Keeping bees merely as an amusement, and never selling either wax or honey, I am not prejudiced in favour of any particular hive, and do not care to retain a large stock of bees. Foot—or, at most, five—hives are all that I keep through the winter; so that I have only a small number of stocks from which to select boxes for exhibition. I have had fair success with Woodbury frame-hives, having taken about 70lbs. from one of them in a season; but, as far as my experience enables me to judge, the Stewarton system yields a larger quantity, and better quality of honey, than any other mode of management. My attention was first directed to this hive by sundry articles emanating from the pen of 'A Renfrewshire Bee-keeper,' who, if I remember rightly, obtained a harvest of about 200lbs. from one set of boxes. To this gentleman I am deeply indebted; and by carrying out the very full and careful instructions which he has communicated by means of this Journal, I have achieved a success beyond my most sanguine expectations.

In 1874 I obtained my first Stewarton hive, and stocked it with an artificial swarm. The following summer, 1875, was the worst season I have experienced

for more than twenty years, and this hive was the only one which gave me any harvest, about 27 lbs. of pure virgin honey.

In 1870 this was the only hive devoted exclusively to honey-gathering, and I obtained from it 144lbs. of splendid virgin super honeycomb, and 6lbs. of slung honey, which were removed from the brood combs merely to give the queen empty cells in which to deposit eggs. The season was an excellent one, and a swarm in a set of Stewarton boxes (a single artificial swarm) gave me 75lbs. of pure super honeycomb; and a Woodbury hive, from which a swarm had been taken with all the adult bees early in the summer, subsequently filled a fine super with 55lbs. of virgin honeycomb. Last summer (1877) was a bad one in our district; but this same original hive again came to the front with 63lbs. of pure virgin honeycomb. Only two hives were devoted to honey-gathering! My other hives were all utilized for making swarms. "While I have thus obtained large harvests of honey for many successive seasons, I find that ordinary bee-keepers in this neighbourhood think they have done well if they have on an average secured 10lbs. from each hive. From what has been said above, I do not wish bee-keepers to suppose that they will necessarily obtain large harvests of honey by simply hiving bees into Stewarton boxes. In bee-keeping, as in other pursuits, excellence is only to be attained by experience and careful attention. The wants and requirements of the bees must be carefully anticipated; but, at the same time, useless and unnecessary interference must be avoided.—J. E. Briscoe, Albriyldon, Wolverhampton, 1th February.

THE STEWARTON HIVE:  
Another Testimony and on Feeding  
Vol V #60 April 1878 pages 216-217

In reply to sundry inquiries made by one of your readers in Berkhamstead, I beg to state that all my Stewarton stock boxes are made with four central frames.

It is best to remove supers as soon as is convenient after they are completed.

As far as feeding is concerned, one of my Stewartons has a feeding-trough sunk into the floor-board, which is convenient, as the bees can be fed without disturbing their outside wrappings. I,

nevertheless, usually feed all my hives at the top. In November all the slides are withdrawn, and a piece of carpet, with a small aperture near the centre, is tacked over the top of the hive; this opening is usually closed with a small piece of loose carpet, and two or three extra thicknesses of some warm material are put loosely over the hive. When feeding is deemed expedient, the loose covering is removed, and a small flat block of wood, with a hole in the middle, is put over the aperture in the centre of the under carpet, and a bottle-feeder inverted over the block. The loose pieces of carpet are then put over the feeder to keep all warm and snug.

My feeders are of a particular pattern, made in accordance with instructions given to a glass

manufacturer, and hold about a quart. When slow feeding is desirable, I tie a piece of vegetable parchment (such as is used for bottled fruit) over the mouth of the feeder, and pierce it with one, two, three, or more holes, with a large pin, and thus regulate the supply of food according to circumstances.

All my stocks, save one, are placed upon square floor-boards (as square outer covers are easy to make, and octagon ones are very difficult), with the upper edge bevelled off all round, about 18 1/2 inches square. Square frames or boxes, without either top or bottom, are put over the hives, and rest upon the bevelled edge of the floor-board, leaving an interval between the hive and the outer cover. A loose top, resembling the gable of a house, fits upon the outer case, and keeps out the weather, but allows the damp from the interior, after it has passed through the carpet, to escape freely into the external atmosphere.

No amount of accommodation will always prevent swarming. When honey is abundant, if the bees take well to their supers, and are supplied with plenty of

room both above and below, they will seldom attempt to swarm, if shaded from the fierce rays of the sun. When the weather is unsettled, so that the bees are unable to work steadily, and there is only sufficient honey to keep them partially employed, they are apt to swarm with most ample accommodation. Last summer I had two Stewarton hives, apparently equally strong, and treated in exactly the same way. One gave me 63 lbs. of super honey, and had a fair stock left for its own consumption. The other most obstinately declined to work, either in its supers; or, strange to say, in a box placed underneath, and with ample accommodation above and below, persisted in swarming. The swarms were returned, but I only obtained a little more than 20 lbs. of honey. For full instructions for working Stewarton hives, I beg to refer your reader to *The British Bee Journal* for November, 1877, page 126, which he will probably be able to borrow from one of his neighbours, if unable to procure a copy for himself. — J. E. Bkiscoe, Albrifjhton, Wolverhampton, March 14, 1878.

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## BRITISH BEE-KEEPERS' CONVERSAZIONE.

Vol VIII #92 Decmeber 1880-1881 pages 153-155

*This took place at 6.30 p.m. on Wednesday, Oct. 27th, at the conclusion of the Conference with the Comity Representatives. The Rev. W. Stuart Walford, Hon. Sec. of the Suffolk County Association, presided ; and there were present the Revs. T. Lawson Sisson, J. L. Sissons, H. R. Peel ; Captain Campbell, R.N. ; Messrs. J. R. Jackson, T. W. Cowan, F. Cheshire, J. Littleboy, J. Garrett, R. A. Boissier, P. E. Martin, J. Abbott, F. Lyon, E. S. Whealler, J. Lemare, R. Jonas, H. R. Vincent, J. W. Wright, J. Camaschella, W. Martin, W. Allen, and others.*

*The Rev. E. Bartrum, M.A., Head-Master of Great Berkhamsted School, read the following paper on*

### The Stewarton Hive.

Appears as the First Part of

‘The Stewarton: The Hive of the Busy Man’

I hope I shall not be considered presumptuous in bringing the Stewarton Hive before the notice of the British Bee-keepers' Association. When I first determined to become a bee-keeper, and consequently was compelled to select some form of the hive, I found that those who had used the Stewarton claimed to have obtained results which certainly were not surpassed, even if equalled, by others who had confined themselves to the straw skep or the ordinary bar-frame. Three years' trial of this hive, in conjunction with other

kinds, has convinced me that its merits are very great, and that it only requires to be better known to be more highly appreciated. Notwithstanding the able advocacy of 'The Renfrewshire Beekeeper,' the hive which he has made almost his own, or, at all events, has vastly improved, is seldom seen across the border; and even persons in England who have adopted it are not all of them aware how best to manage it. I trust, therefore, that I may be able to contribute something towards the advancement of beekeeping by dwelling in detail upon the Stewarton Hive.

The subject of my paper derives its name from the town of Stewarton or Stuart-town, in the north of Ayrshire, on the borders of Renfrewshire. It is said to have been invented about the year 1819, by a cabinets maker named Robert Kerr, of that place, a man as remarkable for his skill in bee-keeping, as in the secrets of his particular trade. ‘Bee Robin’ was the nickname given by his neighbours to Robert Kerr, and we can well imagine that his skill as a workman assisted him in no slight degree in improving the form of the wooden boxes in which he kept his bees. The octagonal form of the Stewarton hive was without a doubt known before Kerr's time. ‘The Renfrewshire Bee-keeper’ informs me that its invention is generally ascribed to the Rev. William Mewe, minister of Eastlington in Gloucestershire, about the year 1652. In April, 1675, John Gedde obtained a patent from Charles II. for his

octagon boxes. They appear, however, to have been used in Scotland with good success before that date. These octagons consisted simply of a series of boxes of uniform depth, with a 5-inch square central hole in each top. Robert Kerr seems to have introduced the moveable slides of wood working in grooves in 1 1/2 inch bars on the top of what are called the body boxes. Of late years various changes have been introduced by 'the Renfrewshire Bee-keeper,' so that the hive, as sent out by the makers at Stewarton, is as follows: —

There are one, two, or three breeding or body boxes, octagonal in form, about 14 inches wide inside, 7 or 9 inches deep, and having eight bars, the six in the centre one inch and an eighth broad, the two at the ends where the honey is stored 1 1/2. The bars are secured by 1/2-inch brass screws, and are supposed to be removeable at pleasure, though sometimes they require a sharper wrench than seems desirable. The screws, however, need not always be fastened, and, like screws of another kind, their absence is often better than their presence. Frames are added to the four centre-bars so that combs may be interchanged just as in ordinary bar-frames. The sides of the boxes are dovetailed, and if the boxes are accurately constructed, as I have always found to be the case, they fit exactly one upon the other. There is a window with a moveable shutter on the back and front of each box, wooden buttons on each to keep the boxes together, handles for lifting, and also hooks or screws for lashing the boxes; but these I have never found occasion to use, the buttons answering every necessary purpose. In each box is an entrance 3 1/2 inches wide, and half an inch deep, with a sliding piece of wood for closing or contracting it. Experience has proved that three entrances are none too many if the hive is prosperous and the weather warm; but in cold weather one will be found sufficient. In addition to the breeding or body boxes, supers or honey-boxes are also required. These correspond in width with the other boxes, but they are 4 inches only in depth, and are each furnished with seven bars, 1 1/2 inches broad, whereas the central bars of the body boxes are one inch and an eighth only. The shallowness of the supers, the thickness of the combs, and the additional depth of the cells, all tend to deter the queen from converting these supers into breeding-boxes. The number of honey-boxes required for each Stewarton set is somewhat uncertain; my Stewartons this season have been made up of three body and four honey-boxes or supers, but probably the best Stewarton super exhibited last year was obtained, I believe, from a single body-box. Very much, of course, depends on the season and

neighbourhood; but I may say that I do not at all despair of filling six, eight, or even ten honey-boxes placed on the top of one Stewarton hive whenever we have a favourable season.

Besides all these boxes, the wood of which is only five-eighths of an inch thick, an outer covering of some kind or other seems to me to be absolutely necessary, and the cost of the hive is thereby increased. This covering, like the hive itself, must be capable of expansion or contraction. Mine consists of two or more cases, each about 19 inches square, 11 inches deep, with a rim 2 inches wide fastened round the bottom, so that it fits on to another case. A moveable top will also be required, and one of the cases must have a wide opening at the bottom for the admission of the bees. In this case the rim must not be added on the side where the opening is made, so that the case may fit the floor-board. The floor-board should be also 19 inches square, with a projection in front slightly sloping outwards that the water may run off. Two cross pieces of wood should be nailed at the bottom of the floor-board to keep it from warping, and protect it from the damp. 'The Renfrewshire Bee-keeper' recommends 'an outer octagon case, with a nicely-bevelled roof and an ornamental vase on the top;' but the moveable cases of square form fitting into each other are very convenient, as you can easily remove them if you wish to inspect the boxes. My bees, moreover, were hanging by thousands near the end of June at night-time, when the weather was very warm, between the inner octagons and the outer case, although the three body-boxes and the four supers were full, and in this way the outside covering forms an important protection against that bane of a bee-keeper's life—I mean the tendency of the bees to swarm. These cases can also be used to protect ordinary bar-frame hives constructed with a single wall, and if, as I have found necessary, three tiers of sectional supers are on at one time, a second case can be added above the first with a moveable roof to crown the whole.

Having now our breeding and honey boxes, and also our outer cases, we may proceed to fill our hives with bees, and see how this complex system works. In a famous passage quoted from the *B. B. J.*, vol. I. page 14, in Mr. Hunter's book, 'the Renfrewshire Bee-keeper' has described the general method of manipulating the Stewarton hive. His system of combining swarms deserves close attention on the part of those beginning bee-keeping. I do not, however, propose to repeat what he has written, but will give you the history of my latest Octagon.

At the end of June last year, I placed a swarm in a body box on a platform about nine inches from the ground, in the hope that I might be able to add a second swarm within a few days, as recommended by the writer to whom I have referred. The weather, however, was so unpropitious, that no swarm came, and moreover I was compelled to feed the bees. This was done by cutting one of the central slides, and drawing one of the pieces out some little distance. Above the hole I placed a feeder, made by Messrs. Green & Sons, of Rainham, Kent, recommended to my notice by Mr. Cheshire, whose recommendation I can thoroughly endorse. Over this box, when winter approached, I placed a square case, adding dry fern between the hive and the case, covering the top also with fern. Thus the bees were kept both warm and dry. For months they were left almost unnoticed, until the fine weather on March 1st enabled me to examine them, when I found that they still had food in abundance, and were evidently thriving. Soon a second box, with combs already constructed, was placed below the first, the slides from the top of the second box were all withdrawn, so that the bees could readily enter their new apartments, and slow feeding was commenced.

Ere long the population increased so rapidly that I placed a honey-box fitted with guide-comb on the top, and drawing the two slides on outer slides on either side of the upper body-box, invited the workers to deposit their precious stores. 'A great point,' writes 'the Renfrewshire Bee-keeper' 'in the successful management of Stewartons is to super in advance of the wants of the bees'. The opening on the outer side of the box, occasioned by the withdrawal of the slides, were stopped by the wooden pegs made for the purpose. If the outer slides only are drawn, the queen will not, as a rule, enter the honey box; nor have I found any occasion for queen or drone excluders, as in the ordinary bar frame. 'The Renfrewshire Bee-keeper' asserts that he never found eggs laid in a honey-box, so effectual is this simple plan of drawing the slides only where the honey is stored.

This honey-box was fastened to the body-box by the wooden buttons mentioned before, and thick paper was also gummed or pasted over the part where the boxes meet, so that air was excluded, and the heat of the hive increased. The super was carefully covered with flannel or old carpet, so as still more to raise the temperature, and induce comb-building. The bees at once occupied the super, and no great interval elapsed before white comb began to approach the windows. It soon became evident that more room was wanted; a

third body-box, with the frames filled with foundation-comb, was added below, and all the slides between the body-boxes withdrawn; then three more honey-boxes were added above, and three entrances, one in each box, allowed to the bees. Thus my seven-inch box had grown to a height of more than three feet; at the end of June it was full from top to bottom, though we had had very little honey from the apple-blossom; large clusters of bees, moreover, were hanging between the outer cases and the inner octagons whenever the nights were very warm, and I entertained a sanguine hope that I should obtain an enormous harvest from a single hive. But the incessant rains of July and the loss of the lime harvest occasioned by unending wet weather, prevented the fulfilment of these anticipations. Nevertheless, I was rewarded with 70 lbs. of super honey in addition to the contents of one of the breeding boxes. I may add that my other Stewarton, treated in a similar manner, gave me a very similar result. Some of the boxes from these two hives were shown at South Kensington, St. Albans, and Boston, and won four prizes. In 1878, the first year I tried this special hive, I showed a honey-box on two occasions, and won two prizes.

This brings me to another feature of our subject, I mean the extraordinary harvests which the friends of the Stewarton assert it has secured. 'The Renfrewshire Bee-keeper' tells us that in the year 1868 he had ten octagon supers from one hive, and obtained 164 lbs. of super honey in addition to 30 lbs. in the body-boxes.

Mr. Briscoe, of Albrighton, Wolverhampton, has put the fact on record, that in 1876 he had obtained 144 lbs. of the purest super honey from seven octagon boxes by August 6th, and that after the supers were removed, the three body-boxes weighed over 70 lbs. A second set of boxes, fitted with an artificial swarm, yielded 75 lbs. of equally pure virgin honey-comb.

The eminent Scotch bee-master, to whom I have so often referred, obtained nine octagon supers in that year from one hive, and eight from another. In 1878, a very poor honey year, he obtained over 80 lbs. of super honey; and a Scotch parish clergyman, we are informed, from eight octagon colonies secured 445 lbs. of the purest comb, entirely free from pollen, brood, or the slightest impurity. One colony contributed 92 1/2, the next best 88 lbs."

Mr. Briscoe, in the March number of the *British Bee Journal*, 1878, has given an interesting account of his Stewartons for several 3 years in succession, in which he also tells us that in his own case a good harvest from the Stewarton is the rule rather than the exception. And some of you may remember that last

year a distinguished member of our committee was able to show a beautiful Stewarton box, one of the very few good exhibits of 1879, which he obtained during a short spell of fine weather, while the lime-trees were in blossom.

A hive, then, that has secured such remarkable results, must have features connected with it of unusual merit, and on these I shall now venture for a while to dwell.

1. First and foremost comes the remarkable power possessed by this hive of expansion and contraction, and consequently the ready prevention of swarming if the bee-keeper does not wish his bees to swarm. The prize octagon of last year to which I have alluded was obtained from a single body-box, yet sometimes as many as ten supers, each 4 inches deep, three body-boxes each 7 inches deep, and an eke below of 2 inches, are employed, though not necessarily all at one time, as the lower supers when completed may be removed and empty boxes substituted on top. The first super, or, at all events, some completing super, should remain until the end of the honey-harvest, as the queen, should she pay a visit to this portion of her domain, will return, finding every cell filled with honey, and no opening therefore left for her energies. The outer case protects the hive itself from the sun, and this fact again lessens the chances of swarming. By altering slightly the position of the moveable top, a current of air will in the hottest weather be created, and the three entrances will still further tend to cool the hive. Those who have tried the Stewarton assert that the bees very rarely swarm if room above and below is given in due time, whereas in the ordinary bar-frame the tendency to swarm is often irresistible in spite of every effort that can be employed.

2. Secondly, this hive is essentially the hive of the busy man, as satisfactory results can be secured without the expenditure of the time and trouble required by the ordinary bar-frame.

From one of my bar-frames this year obtained more than 70 lbs. of super honey; but the trouble it demanded was at times excessive. Every section required some guide comb; to cut out and fix this comb in seventy sections must cost well-nigh seventy times seven minutes. When the sections were on they evidently were in want of something to bind them together and exclude the air, so that at each junction we pasted or gummed some paper. The time this cost would not be difficult to calculate. The numbers soon increased so rapidly that, in spite of three tiers of sections, swarming seemed imminent. All the supers were therefore taken

off, and the hive examined. What infuriates the bees more than the removal of their honey? The task of cutting out queen cells under such circumstances demands time as well as courage, and so I found. No cell was discovered inside the hive, but on examining the sections we came upon unpleasant traces of the queen, as well as a queen-cell. Thus the sections each required inspection, until at last I exclaimed, in spite of a splendid harvest, 'Le jeu ne vaut pas la chandelle.'

A very busy man must, in my opinion, avoid the ordinary bar-frame, whereas he may succeed with the Stewarton.

3. Thirdly, the Stewarton winters well if only ordinary and proper care be taken. The thinness of the crown-board, a quarter of an inch only, is advantageous in summer, as it allows the heat of the hive to enter the honey-box, and in winter permits the moisture to evaporate. Hitherto I have not withdrawn the slides in winter, but henceforth I shall follow with one or more of my octagons the advice of the Renfrewshire Bee Master, draw the slides entirely out, and over the top of the hive fasten some Indian matting, securing it with tacks to keep it straight. Under this matting I shall put some flour-cake, above and around dry fern or chaff, protected from the wet by the outer case, so that the bees within will be warm and dry, and probably breed through some portion of the winter. It has been said that the octagon shape is superior to the oblong for wintering, that in the ordinary bar-frame some of the frames at either end should be removed to prevent mouldiness, whereas nothing of the kind is required in the Stewarton; that the octagon shape gets rid of the awkward corners; that the small size of the Stewarton box enables a higher temperature to be maintained with less difficulty than in most of the ordinary bar-frames; and that the massive honey-comb at either end of the breeding-box tends to keep out the cold. In a very able and interesting article entitled 'The Philosophy of Hive Shape,' which appears in the *British Bee Journal* of September, 1874, Mr. Cheshire has assailed the first assertion; and I am not prepared to controvert his views. But I am expressing not only my own, but also the opinion of others better fitted to form an accurate judgment, when I say that the bees will pass the winter well in a Stewarton Hive properly managed.

Now let me put the other side of the question. Objection is made to the slides, which are often difficult to move or remove. Again I venture to quote Mr. Cheshire, who has suggested that a little tallow added at intervals will make them run more smoothly: a small screw-driver at one end, and a pair of pincers at the

other, will always solve the difficulty. A heated iron applied to the slides is also said to be sufficient to loosen them.

Another and a formidable objection is that the large supers are sometimes unsaleable. If even every beekeeper desired to obtain honey for the purpose of selling it, the objection would have weight, but some of us do not. It happens in many cases that articles in universal demand are at times unsaleable, because the right means have not been employed, or sufficient trouble taken. If proper jars be used, if the agents and experts of this Association exert themselves for the members, as I trust they do, and will, I cannot but think that honey of the purest quality will find a ready sale. 'The Renfrewshire Bee-keeper' tells me that he has been accustomed to receive 1s. 6d. per lb. for his honey, and that in 1878 he obtained 16l. for surplus supers.

Another objection brought against the Stewarton is its costliness. No doubt a set of octagons, with the floorboard and outer cases, costs more than a simple bar frame, but for my own part, I have not yet come upon a cheap bar-framed hive that has produced great results.

Body-boxes can be obtained from Stewarton at 5s. 3d. each, or 15s. for three, honey-boxes for 2s. 6d. each, a floor-board for 1s. 6d. Thus 1l. 6s. 6d. will provide three body and four honey-boxes, and an amount of accommodation sufficient for the most prosperous stock.

If you are also to have an effectual outer covering, you will require two cases at least of the size I have named, as well as a moveable roof.

My carpenter's charge for two outer cases with the roof, each with three coats of paint, is 13s. The total cost of the hive and cases will thus exceed 2l., as

carriage from Scotland must be included; but this sum comprehends almost if not everything that can be desired.

For purposes of manipulation, of interchange of frames, for use of the extractor, for the production of marketable sections, it must, I think, be admitted that the ordinary bar-frame has the decided advantage. Anyone who wishes to become an advanced and skilled bee-keeper will never be without bar-frame hives, provided only he has the time to spare as well as the patience.

In conclusion, I may say that few things are more pleasing to me as a bee-keeper than to watch a prosperous Stewarton on a fine summer's day. The roar of the myriads of bees rushing to and fro resounds far and wide; the air is filled with their merry music, and as they disappear in the distance, the mind travels with them, and wonders what fields they will traverse, what flowers they will visit before they return. Life to them seems full of joy; they are seeking the sweetest of all created things, they wander only in pleasant paths, and in doing good to themselves diffuse fertility and new forms of life everywhere around them. As the day declines, they return to their home, teaching us day by day the lesson that so few of us are willing to learn, that while we must not be over anxious about the future, yet that in spring and summer we must prepare for the autumn and winter; that however bright the sun may be to-day, we must not forget the duty of providing and Preparing for the future, as the Great Ruler of the Universe may grant us opportunity.

[The discussion on the above paper we reserve for our next issues—Ed.]

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## BRITISH BEE-KEEPERS' CONVERSAZIONE.

Vol VIII #93 January 1881 pages 169-170

Appears as the second part of  
"The Stewarton: The Hive of the Busy Man"  
Discussion on the Rev. E. Bartrunis Paper on the  
Stewarton Hive.

The discussion was commenced by Mr. T. W. Cowan, who said that after sixteen years' experience with the Stewarton hive, he might be expected to say something about it. He was not prepared to condemn it, but on the contrary, he considered it a very useful hive, which certainly held an intermediate position between the straw skep and the moveable comb hive. It was far superior to the straw skep, but did not come up to the

moveable comb hive. This gave the bee-master complete control over his bees, and allowed him to perform operations with ease which would be extremely difficult if he only used the Stewarton hive. He had adopted several variations in working the Stewarton system, and had found generally two body-boxes and an eke sufficient. Instead of having an entrance to each body-box, he preferred the three entrances in the lower body-box, as recommended by 'the Renfrewshire Bee-keeper.' There were only four frames in a Stewarton box, and these were screwed down, and before they could be made moveable or an examination of the hive take place they had to be unscrewed. To examine the side combs the boxes have to be turned up, and unless the frames are screwed

down they fall out. He had witnessed an accident of this sort last summer when visiting a friend who had a Stewarton hive. His friend had forgotten that he had not screwed down the frames, and on turning over the hives, frames, combs, and bees all fell to the ground in one confused mass. The trouble of making a thorough examination of Stewarton hives is, moreover, greatly increased by having to go through the same operation in each box; and when these are taken apart and are full of bees, it is not such an easy matter. He had stocked Stewarton hives with as many as five swarms, but had found by experience that two good swarms placed in the body-boxes did better than a larger number. Mr. Bartrum had mentioned as one of the advantages of the Stewarton hive the side slits for admitting the bees into supers, and preventing the queens going up into them; but the same plan was adopted by those who used moveable comb-hives for the same purpose. Here, however, he would admit that the Stewartons had the advantage, as in these the queen would rarely visit the outer combs if she had sufficient room for laying in the centre of the hive. His opinion was in favour of frame-hives, as in them you can make the bees increase more rapidly. By following out his plan, published some years ago and now universally adopted by advanced bee-keepers, viz. that of contracting the brood-chamber of a hive so that the bees cover every comb and spreading the brood, it is astonishing how rapidly a weak hive may be built up and become strong, and that under conditions which would prove fatal to a Stewarton. Bees are more inclined to extend their brood-chamber laterally, but this is prevented in the Stewarton hive by the outer combs, which act like blocks of ice, compelling the bees to extend their brood nest downwards. Although he had been for many years a successful exhibitor of Stewarton supers, he could not allow that sections gave so much trouble to the bee-keeper as Mr. Bartrum would make out. He did not see why it was necessary to have three tiers of sections when one would do as well, or better. He used a rack of twenty-one sections, and had found this by proper management quite sufficient for a whole season, for as fast as any of the sections become filled they are removed, and empty ones put in their places. There is a great advantage in being able to remove a comb as soon as finished, as the bees do not discolour it or increase the thickness of the wax covering to the cells, as they do if left too long on the hive; and as the centre combs are completed before the outer ones, much time is saved by their removal. With a Stewarton hive you have to wait until the outside combs of the supers are sealed

over, or they do not look well; and by the time this is done, unless the flow of honey is very great, the centre combs are overdone. He thought that the plan of giving bees additional breeding space, at the rate of one or two frames at a time, preferable to giving them a whole body-box, as in the Stewarton, because the heat of the hive is better utilised if the hive is enlarged only in proportion to the requirements of the colony. He had prevented swarming in moveable comb-hives by removing some of the combs and filling up their places with comb foundation or empty combs; this gave the queen more breeding room. Also, the free use of the extractor assisted very much in checking swarming, and was only advantageously applicable to moveable comb hives. Mr. Bartrum had mentioned 164 lbs. of super honey and 30 lbs. from body-boxes as being the largest harvest of honey from a Stewarton; but he would mention that he had taken 120 lbs. of super honey, and 80 lbs. of extracted honey from one frame hive, and this showed a balance in favour of the frame hive. Had the extractor been used entirely he had no doubt this quantity might have been doubled. He did not see the use of the buttons on the Stewarton boxes and thought they were only in the way. He had not found the slides much trouble, and if the hives were strong enough in bees the internal temperature of the hive would always be sufficient to prevent their being too firmly fixed in the grooves. As to manipulations, such as cutting out queen-cells, removing brood, and artificial swarming, no one can deny that they are carried on much more easily in a moveable comb-hive. He wished to say one word as to feeding. The idea occurred to him that it would be a great advantage if in the autumn one hive could be made to do the work of a whole apiary. Those who were feeding their bees know that last week the cold put a sudden stop to it. Now all honey or syrup unsealed ought to be extracted, or the stocks would be liable to dysentery. Instead of feeding up each hive separately, he had fitted up a paraffin stove in one of his bee-houses, and kept one hive at a high temperature day and night. He had had a large feeder made to hold half a gallon, which was placed on the top of the hive, and was replenished as fast as the bees carried the syrup down. In this way he had got these bees to fill and seal their combs from top to bottom, and as fast as they were completed he removed them, and distributed them amongst those hives requiring stores. So far the experiment had been satisfactory.

Mr. Cheshire considered Mr. Bartrum's paper to contain so much that was excellent and valuable, and which withal made out such a strong case, that he did



not feel disposed to attack the Stewarton at all sharply. He said it was difficult in a Stewarton hive to overhaul the stock, and finding the queen was often impossible, though by putting side slips to the outside bars, the difficulty is considerably lessened. No doubt the great advantage of the Stewarton hive is its elasticity. With regard to the moveable comb hive, we have not all of us yet attained perfection, and indeed ordinary management left the frame-hive practically inelastic. The common idea used to be that bees were to be put into a bar-frame hive, and expected to fill the supers without any further trouble on the part of the bee-keeper. An intelligent bee-keeper would not think now of putting a few bees to ramble ad libitum over a large empty hive, and fill it as they best could. He who knows how to manage would narrow the space in which his bees are placed by the means of dummies, and then, as the bees multiply, keep on expanding that space until it is quite full of bees. The Stewarton is certainly not so gradually expansible as the frame-hive, as one must pass at once from one box to two, or at best to a box and eke. Though much may be done in the Stewarton towards preventing swarming, the same may be accomplished in the bar-framed hive by continual expansion. The great secret of success is to increase the brood-nest gradually, and to obtain a large quantity of bees before the beginning of the honey harvest. He had obtained such results last year by acting on this principle, as could not have been obtained in any other way. A principal desideratum in any form of hive lies in its expansibility and its contractibility; the lack of which, even if it had no other drawback, would put the skep utterly out of court in the opinion of those who have learnt modern plans. There is a change of opinion discernible as to the size of hives. The Americans begin to say that their hives are too big, and smaller hives are coming into favour. The less room you have in the brood-box, the more bees you must, of course, have in your sections. Give the queen room enough, but short of this all hives should be contracted as much as possible when supers are put on; all combs containing no brood being removed. With regard to feeding, Mr. Cheshire had now tried flour-cake for two seasons, and could speak of it in the highest terms of approval. He had used tallow to grease the slides of his Stewarton hives, and had found that this prevented the bees from fastening them down with propolis. He mentioned in reference to the number of swarms which might be put into a Stewarton hive, that some French experiments show clearly that 67,000 bees give the best results, and that little good is done if swarms are added after 12 lbs.

of bees have been massed together. Mr. Cheshire disapproved of the buttons on the Stewarton hive, as the bees would fix the boxes together, quite well enough for themselves. In conclusion, Mr. Cheshire allowed that much was to be said for the Stewarton hive, but declared his belief that as bee-keepers go on with the ordinary frame-hive, and learn by experience how much may be done with it, the latter will come more and more exclusively to the front.

The Rev. George Kaynor had worked the Stewarton hive for twenty years, but not in its improved form. The frames were originally not removeable, and in that form the hive was not to be encouraged, for he had tried greasing the slides, and had not found it to answer, as the bees removed the tallow, and then propolised. With regard to facility of manipulations he was of opinion that the Stewarton must yield to the bar-frame hive.

Captain Campbell regarded the Stewarton hive as a convenience. Some friends of his had asked him to take care of their Stewarton hives during their absence from home, and he had soon found out the difficulty arising from the side frames being screwed down. He had turned them all into moveable frames, and had put them into the Slinger. He found the Stewarton supers unwieldy and inconvenient. It was also difficult to find purchasers for supers weighing 20 lbs.; but he was fond of taking a holiday now and then; and as his frame-hives kept him rather too much at work, he admitted the convenience of the Stewarton for those who could not be always attending to their hives. He made his own Stewarton boxes for one shilling each, and thought five shillings too much to give for them. He found no difficulty in overcoming the propolis of the grooves and slides by prising them open with a thin knife. Buttons he thought an abomination, and took them away, winding a cloth round the hives. He thought that three entrances to a hive were a mistake, and that there should be but one entrance. Bees wintered in Stewartons, perhaps, better than in frame-hives, and the boxes were very easily turned over, so that you could see all that was going on inside.

In replying to the remarks made upon his paper, Mr. Bartrum said that he had no wish to place the Stewarton above the moveable comb hive; but he thought that the Stewarton should have a place in the apiary. Bar-framed hives require constant attention: sections must be put on and taken off, the extractor must be in constant use, queen-cells must be cut out, and the hives frequently examined, and a busy man has not time to attend to them. Many persons wanted a hive which they could keep and work without constant

supervision, and for such persons the Stewarton was a very valuable hive. No doubt the bar-frame hive was the best for a skillful bee-keeper who had the time and patience to bestow upon it, but the Stewarton was the hive for the busy man, and he was anxious that it should have a place in the bee kingdom.

Mr. T. W. Cowan, in moving a vote of thanks to Mr. Bartrum for his excellent and valuable paper, was quite prepared to allow the value of the Stewarton hive. Management was, however, the great thing after all. With good management almost any hive will succeed. Bee-keepers are unsuccessful because they do not manage their hives rightly. He had had a frame-hive this season reduced to five frames, in each of which there was brood to the top bar, and it had given him some beautiful sections. He advised all bee-keepers to compress their bees with dummies, and to reduce the size of their hives to the number of bees which they contain.

The motion for a vote of thanks was seconded by the Rev. George Raynor.

The Rev. E. Bartrum moved a vote of thanks to the Chairman, the Rev. W. Stuart Walford, whom he

commended as being one of the chief promoters of the Suffolk County Bee-keepers' Association, which had attained the distinction of having purchased a bee tent during the first year of its existence. Mr. Bartrum also mentioned the very successful show which had been held this year at Ipswich mainly through the exertions of their Chairman for the evening.

Captain Campbell seconded the motion.

The Chairman, in responding, regretted the absence of the Rev. R. A. White, the Vicar of Ipswich, who had been obliged to leave at the conclusion of the earlier meeting held on that day. Mr. White had achieved great success with his Stewarton hives, and had taken 140 lbs. from one this year. Mr. Walford supposed that success was, as Mr. Cowan had said, to a great extent, a question of management, both with the Stewarton and the Bar-frame.

With reference to a question asked by the Chairman as to the efficacy of tallow in keeping away the bee-moth, Mr. F. Lyon stated that he had found a mixture of tallow and black-lead very useful for that purpose.

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THE STEWARTON HIVE.  
By the Renfrewshire Bee-keeper.  
Vol VIII #93 January 1881 pages 170-172  
Appears in Appendix No. III  
of The Stewarton: The Hive  
of the Busy Man

While perusing with much interest the Rev. E. Bartrum's excellent lecture in last month's B.B.J., on my favourite hive, the Stewarton, I could not but regret that other engagements prevented me being present to hear it delivered, when I would have been delighted to have borne the brunt of the fire of criticism to which it was subjected, down to its most minute part—the buttons; and having seen a report of the discussion which followed, I would take the earliest opportunity of craving a little space to try and remove some of the misconception-smoke left hanging around it.

Having for many years disinterestedly endeavoured to spread more widely a knowledge of the splendid results obtained by the hive and system of bee-management I had done something to improve, I felt the fullest sympathy with the rev. lecturer, who, true to the instincts of his profession, finding its great value, proceeded to proclaim it before his brethren of the

British Bee-keepers' Association, and what he has so well said leaves but little to supplement.

Although the wooden covers I use keep the hives nice and dry, parties to whom their cost is an object must understand that is an outlay not absolutely necessary in conjunction with the hive; a good thick straw hackle is a useful although not so good a protection, provided the hive-hoard stands as it ought, some twenty inches above the level of the ground on a 6-inch fire-clay fawcet pipe sunk 16 to 18 inches.

There should be three entrances to each body-box, and these I regularly widen to 5 inches long by three-quarters of an inch deep. All are kept closed with the sliding doors save those in the lowest box, and there the side ones are similarly kept shut except during the full heat of the supering season. The central door, or 'mouthpiece,' I divide into two equal portions, for regulating the entrance in the centre. So placed, and the hive drawn close to the cover-front, bees are effectually excluded from the cover. No doubt in hives destined to swarm, drawing back the hive and admitting the bees afford them the fullest protection from sunshine and shower; but in nonswarming Stewartons these idlers are much better drawn up to secrete wax on the guides of added supers. When once the supering season is fairly on, the hive is stripped for action—the cover removed

entirety, the hive drawn back to the flush end of the board, thus giving the fullest alighting room in front and keeping out damp behind. From the iron weighing-hooks in the body-box I cord tight down the supers to prevent their displacement by the four-ply thick crumb-cloth or other warm woollen stuff folded and tied tightly around them. The moveable top of the cover is then set on, and from its vase on the apex is suspended, on the sunny side, a full-sized Archangel bast-mat. After the three doors of the lower box are fully drawn, thus shaded with 15 inches of door space for air, egress, and ingress, and ample and gradual expansion of super space, swarming is reduced to the minimum: indeed during the by past season not a single swarm attempted to emerge from one of my many Stewarton stocks; and to see such colonies at full work is a real pleasure to every true lover of the bee. But to return to the discussion. The assault was led by

Mr. T. W. Cowan, who considered the Stewarton as an intermediate step between the straw skep and the moveable comb hive; but the Stewarton under discussion it so happens is a moveable comb hive. It is against all rule to have any entrance but through the lower body-box. He admitted the frames and bars are fixed with half-inch brass screws by makers to retain these in position on their journey, and are still useful for inversion to receive a swarm up in a tree; but so soon as the hive is peopled, the screws are at once withdrawn, and at the present moment there is not a single screw in my apiary, but had I occasion to send a hive away or to the moors, to keep all safe I would certainly reinsert them. I prefer sweeping the bees from the combs of my hives, but for those choosing to drive the screws afford the facility. I am glad to hear that one of the best and most original features of the Stewarton hive, excluding queens from supers, has been copied in square frame hives; presumably by zinc excluders, which was all along effected in the former so simply by the slides. The Stewarton being essentially a strong hive system, its disciples are fortunately better accustomed to expand than 'contract the space;' and as for 'spreading the brood,' they more wisely leave that to be regulated by the numbers and instinct of the nurse bees. I entirely dissent from Mr. Cowan's theory that bees will extend their combs and multiply more rapidly in a square than a Stewarton hive, having in novitiate days abundantly proved the contrary. The heat emanating from the central cluster ascends to keep the brood overhead warm, which liberates so many more bees to increase the cluster. Wax secreting and comb-building progress more rapidly in a downward direction than when the

cluster is divided and combs built at either end. With regard to the question of sections, I quite agree with Mr. Bartrum that Stewarton supers give more honey' with much less trouble. Mr. Cowan, I fear, labours under a misapprehension as to the completion of the Stewarton supers: the bees ascend and cluster on the end bars, and from thence the work gradually progresses towards the centre, where the windows are purposely placed; and it is an axiom in the Stewarton system, that so soon as the central combs are seen to be sealed out, the super can be safely removed complete; and in all my experience of this hive I do not remember meeting with a single exception to the rule. But I have had much trouble when I wrought square supers on square hives, of unsealed end combs and corners. To contrast harvest results, one year and one district of country against others, affords no criterion as to the comparative value of any hive or system.

Mr. Cheshire followed by saying he did not feel disposed to attack the Stewarton at all sharply, and it would be very ungrateful if he did after finding for him the premier super in the honey famine season of 1879—the proof of the pudding is at all times the eating of it. I was first attracted to bee-keeping through opening up several colonies long established in the roof of the house here, and there learned the true 'Philosophy of Hive Shape ' in the five or six feet stretches of comb I measured in the narrower, while the wider they as heartily eschewed, as they afterwards did the collateral additions of my 'Pavilions of Nature' of the much-vaunted Nutt's hive; and every conceivable plan of lateral extension the enthusiasm of the novice could invent proved an utter failure, the bees persistently carrying the brood-combs downwards and the honey-comb upwards, with the regularity of the piston of a steam-engine. When I found the Stewarton, I discovered what I considered the nearest approach to their *beau ideal*; it yielded me harvests unknown before for quantity as well as quality: for, after all, what is the bee-keeper's great desideratum? —the maximum of honey with the minimum of trouble, other points follow after, as subsidiary. There was now no removing the end combs in autumn as in the square hives, no contracting of space in spring, but expansion into lower box, the usual large surplus store saving all feeding; only trouble, a pleasant morning's task in putting on and afterwards removing filled supers. There are, however, a class of bee-keepers who must continually be pottering amongst their bees; such disturbed hives don't usually give great returns. According to a recent work the 'bee-farming' of the future is to be carried out in 12-

inch square boxes, no supers tolerated; the greatest harvests known are to be obtained by continually passing the end frames through the extractor as quickly as gathered. On the farm, fancy already hears the stillness of the summer evening broken by the rattle of the tin extractor and tin milking-pail as they are passed on to the bee-house and cow-house respectively; and our industrious little favourites may thus be saved the second swallowing, flitting, and disgorging task. Mr. Pettigrew depicts them as nightly engaged in performing thus in his big straws; but many of us may feel thankful we are not bee-farmers.

Applying the moveable comb principle to my roof bees, and believing in it from the beginning, I carried it out with every part of the Stewarton from their frames; I raise my queens in nucleus four-frame boxes. These, when full, are transferred to form young colonies. End combs I had at first in frames similar to the centre, but afterwards dispensed with them, finding those end combs being carried out to the sides helped to concentrate the central heat of the brood-nest better, and isolate more effectually the breeding from the honey-storing department. A thin-bladed old table-knife easily severs any little comb attachments of those end combs should a queen have hidden there from off the brood-net.

I quite agree with Mr. Cheshire as to the modern frame hive being practically inelastic, and to my view, for practical bee-keeping a grave fault, the inner being inseparable from the outer shell—moveable combs in a hive filed to legs and cover. A friend in the island of Bute last spring using some Perthshire frame-hives consulted me as to the best plan of joining a queenless to a queened stock, and I suggested sprinkling a little flavoured syrup, and after puffing smoke to both, to place the queened one on the other, so easily managed with the Stewarton; but I had a reply that the legs forbade the union. I had promised to Italianise a couple

of stocks to the same friend, but as the hives had to be conveyed some distance to it, and afterwards by steamer, then rail, and a good way from station here. As they stood it was out of the question; so the bee-keeper had to incur the expense of having two hives made, with boards to carry the stocks, and when shut in a man took both on his head.

It would be a most hazardous procedure to move a Stewarton colony anywhere unbuttoned.

Rev. George Raynor, by drawing any one slide on top of a Stewarton, and then moving the frame closer to blank side, the next can be *lifted out*, if preferred, without drawing at all, and so on. Slides never gave me any trouble; by *drawing* one either side, any particular frame can be inspected without disturbance, to rest. Tallow and black lead are unpleasant associations for a bee-hive.

Captain Campbell is perfectly right in saying the Stewarton hive is a convenience, and gives little trouble. Possibly hives made so cheaply as a shilling a-piece may lack the exactness of fit as to render the buttons 'an abomination,' and from the same cause ventilation may be so amply provided as to justify the triple entrance 'a mistake.' I work two sizes of Stewarton supers; one 3 1/2 inches deep contain 15, the other 4 inches, 20 lbs. of comb honey. It may not be generally known that the Stewarton, if not the first hive to carry a super, has possibly a yet better claim to carry the first sectionals. Its supers, twenty-five to thirty years ago, I am informed, were commonly divided into halves and quarters; but on turning my attention to improve this hive I preferred to retain the super entire as 'a crate,' and to render its seven combs moveable, as seven sections. I give away most of my honey to friends in this way attached to the bars, and it is commonly so sold in Glasgow Italian warehouses in single bars at a higher price per lb. than the entire super brings. The bars can be replaced at 1*d.* each.

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THE STEWARTON HIVE:  
Clearing up Some Misconceptions  
Vol VIII #96 April 1881 pages 240-241

In the January Number of the Journal I endeavoured to remove some of the misconceptions which unfortunately still appear to linger in the south as to the value and manipulation of the Stewarton hive from the discussion following on the Rev. E. Bartrum's excellent paper on the above, hive read before the British Bee-keepers' Association; and I regretted to find

from last month's Number so distinguished a member of that Association as Mr. Thos. Wm. Cowan reiterating the views he put forth previously, thus necessitating a fuller explanation.

Mr. Cowan now admits that the principle of contrasting the harvest of 104 super and 30 lbs. body honey obtained by me here from one colony in 1808 as against 120 lbs. super with 89 lbs. added of that watery deposit, crude or extracted honey, from a frame-hive in his southern apiary in presumably some other 3year, is, as I put it, 'no criterion as to comparative value of any

hive or system.' He, however, added he, has wrought both hives and systems side by side ; but, as he mentioned at the discussion, he had adopted several variations, which of course he was at full liberty to do, in working the Stewarton system, this might partly account for the abnormal state of matters induced, such as octagon supers being sealed from the centre outwards, and he may possibly feel that results contrasted in such circumstances would scarcely be 'fair,' nor yet 'instructive.'

It is now more than twenty years since I rendered the Stewarton hive moveable and interchangeable in all its parts, so far as its form would allow; and to me it does seem strange to find it described as an 'intermediate' or 'stepping-stone' from the straw skep to the moveable comb-hive. That the Stewarton is a moveable comb hive may be best illustrated 'when I say I have a good stock of those hives peopled, and as good a stock in reserve against the coming season. I do not believe at the present moment a stock-box in my apiary contains a single frame or bar originally made for it, so thoroughly have their contents been interchanged, which speaks equally decidedly as to the moveable nature of the contents of the Stewarton, as well as the exactness of Stewarton workmanship.

According to Mr. Cowan, a moveable comb-hive to be worthy of the name must have all its combs exactly alike, not corresponding with the like parts of the same description of hive; but all must be reduced to one common level. Perfect equality, I am afraid, is not to be found in Nature, the body politic, nor yet in the bee-hive; it exists solely in the dreams of the theorist. A good many years ago I have a vivid recollection of a correspondence with a talented apiarian in the South, then wildly enamoured of this equality principle. The supers were to be of a uniform depth with the stock-boxes for interchange of contents. Their bars, too, must be of the orthodox seven-eighths of an inch wide. There was as great a dread of the frames touching the crown-boards as your correspondent seems to have of my close-fitting, honey dividing end boards. I argued then, as I do still, Nature against equality, or adaptation of means to an end; and am afraid I rather shocked my scientific brother, telling him the shallowness of my supers, and that their bars in common with the end ones of my stock-boxes were 1 1/2 in. wide. I chaffed him as to what attenuated, miserable appearance honey-combs seven-eighths wide would make, that his aim ought to be as complete compartmental arrangement as possible, not one of equality. I rather suspect the value of the broad bar was never fully appreciated in the South till

the rich, massive combs of the Scotch exhibits at the first Honey Show at the Crystal Palace attracted universal admiration. I am twitted with being unable to interchange the end combs for central frames; and I am proud to say the Stewarton end admits facility for no such bad practice, but those bars fit either end of each box, a fact your correspondent seems not yet to have discovered.

So far from Mr. Cowan's position, that the Stewarton is the 'stepping-stone' to the square frame-hive, in my experience the very opposite holds good. 'Contracting the space' has always appeared to me as a confession of weakness, dwindling members, retrogression, in short; the pair of dividing-boards as the crutches on which the invalid leant in hope of being restored to a measure of strength: crutches and splints are doubtless very useful aids for the weak and broken members of the apiary. When I found the Stewarton I found an essentially strong hive system, independent of all such appliances.

I grant that the queen can be more readily found between the dividing-boards or in a common frame-hive than amongst the teeming population of a many-storied Stewarton colony; the bee-keepers' great desideratum is not to find the queen, but the honey. Beyond craving an audience to satisfy myself of the safety of all my queens at the spring overhaul, and again for the deposition of the aged in autumn, I rarely disturb my honey yielding colonies for such a purpose, and experience little trouble of finding her on the frames of the central brood nest, from which the German idea is she passes at her peril. It is the queen of the frequently-disturbed hive which makes off, and hides in the clusters of the odd corners. It is in such inelastic hives as the common frame fixed to legs and cover, rendering the natural extension of breeding space in a downward direction impossible that the necessity existing for searching for queens, temporarily removing filling-supers or frames to cut out royal cells, and the endless manipulations consequent on trying to frustrate the swarming propensity of bees from that anomalous state of matters as a moveable comb system located within a fixed breeding space.

I dissent entirely from the theory that, 'Bees are more inclined to extend their brood-chamber laterally. Combs are at all times more rapidly both built and egged in the centre than at the sides of the cluster, the case put by your correspondent does not prove anything beyond the saving of labour to a weak stock being supplied with borrowed empty combs. Surely this idea is carried a little too far when it is remembered it takes

something like three weeks to mature the first batch. 'Spreading the brood,' as I have already put it, is best left to the instincts and numbers of the nurse-bees; and your readers would do well to ponder the excellent and timely advice given by our Editor on this point first page last month's Journal.

The rapidity with which strong Stewarton colonies in favourable seasons complete their supers generally renders partial deprivation unnecessary. Still, I fear, when in a strait for table use I have removed sealed end combs, on more than one occasion ere the central were completed. It is, however, new to me that our little favourites use one thickness of cell caps for Stewarton, and another for sectional supers.

It is perfectly true that a strong colony is more easily got up for the novice; and beautiful completed supers for competition obtained at the expense of combining two prime swarms. Still the supers usually more than repay the cost of bees, with an amply-found strong colony to boot for succeeding- season's campaigns.

Thanks to the thoroughly moveable nature of the contents of the Renfrewshire Stewarton, I must confess it is now many years since I combined two swarms to found a new colony. These are built up from newly combed frames, ripe brood coupled with the flying bees of outlying moved straws, on which table glasses are being filled with the assistance of the adhering young bees and fresh eggs. In the first instance, to get up royal cells, some ten days thereafter these cells are divided amongst as many additional young stocks then started as required. So soon as the honey harvest wanes early in August, these young stocks are fed up till they possess as much sealed- food as will support them in affluence till the succeeding season, which has the effect of adding naturally to the youthful element, the lifeblood of every colony. The population is still further augmented by the entire bees of the adjoining condemned old colony being- swept from the combs into an empty Stewarton box, their queen caged. At

dusk she is destroyed, the young colony sets on top, and slides drawn, when a peaceful union ensues. "With an abundant supply of pollen in spring, such stocks, beyond cleaning 'their boards, require no further attention, and, like all well-found prosperous ones, are best left to regulate the commencement of laying and spreading the brood in keeping with their respective strengths and the wonderful instinct of the bees in forecasting the weather. Stimulating too early, and breeding checked, tell almost as disastrously on the queen and after prosperity, as the premature expansion of the fruit-blossoms does on the fruit crop.

The scientists of our hobby, to obtain uniformity of combs, attempted to solve the problem of squaring the circle, or deviating from the spherical shape of domicile most in keeping with the form bees naturally assume. The octagon is the nearest approach to the sphere in wood, and after testing it for years against the square, I found the bees in the former came out much drier and stronger in spring. Both breeding and comb-building went on faster and more uninterruptedly than in the latter, which a little reflection easily accounted for from the heat of the cluster ascending to keep the food and brood overhead warm, setting free a greater number of workers than could be spared for division ends of square. On the approach of the cold spell, they were forced to pack towards the centre, and abandon the outworks. With the telescopic expansion of all the parts of the octagon, to prevent the annoyance and loss of swarms, the trouble of coddling, and expense of feeding, and, above all, the magnificent harvests reaped with so little trouble as to induce the Rev. Mr. Bartrum to happily dub it 'the hive of the busy man,' and the present writer long ago to abandon the square for the octagon form, that form 'used with success in Scotland' 208 years ago, and down to last season, when it was recorded that a Stewarton and its swarms yielded in the Island of Arran the splendid harvest of 481 lbs.—

A Renfrewshire Bee-keeper.

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### THE STEWARTON HIVE:

Mr. Cowan's Defense

Vol IX #97 May 1881 pages 16-17

I am sorry I cannot allow the 'Renfrewshire Beekeeper's' further remarks on my views of the Stewarton hive to pass altogether unnoticed. I do not wish to contrast my honey-harvests from the moveable comb hive with any other persons from the Stewarton,

but am content to compare the results of the two systems in my own apiary, and under my own management, giving both equal attention. Besides adopting several variations in the working of Stewartons, I have also carried out strictly the instructions given by the 'Renfrewshire Bee-keeper' in the British Bee Journal, and I must say that my experience is most decidedly in favour of the frame-hive.

Your correspondent has evidently had no experience with the extractor, or he would not call extracted honey 'that watery deposit, crude or extracted.' When honey is extracted from sealed combs, it can hardly be called crude honey or watery deposit, otherwise the same term might be applied to the honey in supers. Before it is sealed up, the superfluous moisture is evaporated quite as much in the body-hive as in the supers, consequently, such extracted honey is in every way equal to super, honey minus the comb. When we bear in mind that it takes 20 lbs. at least of honey to produce 1 lb. of wax we can realise the great advantage of the extractor, and the enormous increase to the honey-harvest we are able to secure by its proper use.

Admitting that it is possible to transfer the frames and bars of one Stewarton to another, I still see the objection to the side bars, as they are not interchangeable with the central frames. Therefore, the advantages of the ordinary frame-hive are not secured. It is quite true it is possible, with a great deal of cutting and trouble, to change the bars from one end of the box to the other; but they must be placed in the corresponding positions, and no advantage is gained by the transposition.

Certainly any attempt at spreading the brood in a Stewarton hive would be a very hazardous proceeding; but, judiciously managed in a moveable comb-hive, it enables a bee-keeper to make a strong hive with a small number of bees, which he could not do with a Stewarton.

Every advanced bee-keeper will know by this time that a hive full of bees will increase much more rapidly than one only partly filled; and it is therefore his object to contract the space so that every comb shall be covered with bees. If any bees are only able to cover four combs, the space is contracted to this number, and when there is capped brood on every comb, and bees are hatching out, the frames are parted, and an empty comb inserted in the middle. The hive is now being rapidly filled by the daily hatching-brood, and as the hive shows signs of being crowded, oilier empty combs are introduced. The hive being always full of bees, there is no danger of the cluster receding, as there is in a Stewarton, where the bees have not only to maintain the temperature of the part of the hive occupied by the cluster, but also that of all the surrounding vacant space. When the space is contracted to the capacity of the cluster of bees, they have only that space to heat, consequently breeding is extended laterally under such circumstances much more rapidly than in the larger

space of a Stewarton. Of course, if the bees are allowed ten frames when they can only cover five, the result would be different, and probably, under such conditions, a Stewarton would have an advantage from its octagonal form.

I do not contend for perfect equality of combs in the body of the hive and supers, and these have been used in the south two inches from centre to centre long before the first Scotch exhibits at the Crystal Palace Show. All the supers I exhibited that year had 1-1/2-inch bars, and were two inches from centre to centre.

What I contend for is perfect equality of all the frames of the body-boxes, so that they will fit without any difficulty in any part of any hive. This is admitted by all advanced bee-keepers, both here and in America, to be essential to a profitable management of bees.

It is quite true it takes three weeks to mature the first hatch of brood, but it makes a great difference if this first hatch covers a space of 3 or 4 inches of comb, as it would if left to itself, or if it covered a whole frame of comb. Suppose we take, for example, a cluster of bees 8 inches in diameter at the commencement of the season, and examine them in a Stewarton hive, we should probably find two, or at most three combs containing brood, varying from 2 to 5 inches in diameter. This cluster would have to maintain the heat of the whole hive, and could not increase rapidly until warm weather set in. Now if this same number of bees were confined by division-boards, and made to occupy only two frames, the whole of the available space in the comb would be filled with brood. There would be no danger of its being chilled, because the space would be crowded with bees, and they could not recede. They are also able to maintain a more uniform temperature in such a small

Your (Editor's) remarks apply to the too rapid spreading of brood beyond the strength of the colony, and not to the gradual extension of the brood-chamber with the increase of the population. Your correspondent has evidently not observed the fact that when honey-comb in supers is capped, if left on the hive, the bees will continue to add wax on the coverings until the super is removed. If the combs are removed just when they are completed, the bees have not the opportunity of thickening the cappings. 'A Renfrewshire Bee-keeper' must know that the coverings of the honey-cells in sections would be as thick as it is in Stewartons, were they allowed to remain on the hive long after they were completed; but no such bad practice would be tolerated in a properly-managed apiary. The careful bee-keeper knows that as soon as the sections are sealed over, they

are ready to remove, and every day they are left on the hive after this is a serious loss to him. Every ounce of wax added to the comb is equivalent to a loss of over one pound of honey, which the bees would store to the profit of the bee-keeper were the sealed combs immediately removed.

I am not surprised at your correspondent dissenting from the theory 'that bees are more inclined to extend their brood-chamber laterally,' because in the Stewarton they are prevented doing so, and, however much they may be inclined to extend laterally, they cannot do so on account of side combs blocking the way.

Your correspondent must allow that there are times when it is necessary to find a queen,—in making nuclei and artificial swarming, for instance. However great the population of a frame-hive may be there is no such difficulty in finding her as there is in a Stewarton. True, 'the bee-keeper's great desideratum is not to find the queen, but the honey,' but the practical bee-keeper has no need to look for honey in a frame-hive, with him the difficulty is not in finding it, but in taking it away from the bees fast enough during a flow of honey.

Why does your correspondent constantly allude to the moveable comb hive as an 'inelastic' hive 'fixed to legs or cover?' I am afraid he has not had a very extended experience with it, or he would know that it is not necessary for a moveable comb hive to be fixed to legs or cover. Most of the hives I use are quite independent of both. I suppose in America you would not find one hive in a thousand fixed to legs or cover. As regards elasticity of the brood-chamber, perhaps Mr. Abbott's Combination hive with sixteen frames contains the largest breeding space of any frame-hive, and this can be reduced to one or two frames. If this cannot be called an elastic hive, I have yet to learn what elasticity in a hive consists of. The same remarks apply to every frame-hive. My thirteen -frame hives can be easily reduced or enlarged. I prefer having all the brood in one

story to having it in three as in the Stewarton. In such, hives I have no difficulty in wintering or keeping colonies strong, and am never troubled with moisture or mouldy combs.

For the 'busy man' the Stewarton is useful, as it enables him to get some honey at the end of the season; but it can never become the hive of the bee-keeper who works for profit. Nor could it come into general use, because it is not everywhere that a Stewarton can be placed. It might be placed in some out-of-the-way and sheltered corner of a garden, but could not stand the full force of the wind to which my hives are exposed.

The 'Renfrewshire Bee-keeper' sent a photograph of one of his hives ten storeys high and perched up on a high pedestal, 18 inches off the ground, the summit reaching about feet. It is illustrated in Mr. Bartrum's pamphlet, and so naturally that one expects it every moment to topple over. Such a hive in an exposed apiary would very soon become a ruin. Contrast this with a moveable comb hive, which need not, with its stand, supers, and cover, exceed twenty-four inches in height. There need be no anxiety about these when the wind at night is blowing a hurricane from the south-west. I am quite prepared to allow it, as I have always have done, a place in the apiary, but not the first rank, which the modern frame-hive under modern management holds. There is a class of bee-keepers whose ideas carry them back to the days of their great-grandfathers, instead of the improving age of their more experienced posterity; such are likely to look with reverence upon the form of hives 'used with success in Scotland' 208 years ago, and shut their eyes to the fact that in every respect a modern frame-hive offers greater facilities for manipulation, and obtaining larger quantities of more saleable honey, than from any other description of hive.—

Thos. Wm. Cowan, Comptons  
Lea, Horsham, April 19, 1881.

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THE STEWARTON HIVE:  
Correcting Mr. Cowan Remarks  
Vol IX #98, June 1881 pages 37-39

I regret to find by last month's *Journal* your able correspondent, Mr. Thos. William Cowan, again charging full tilt at my Stewarton as it loftily looks down on its compeers of the apiary, much too high for his simile of the stepping-stone from the straw skep to the moveable comb hive. When I sent my explanatory remarks on the discussion at the meeting of the British

Bee-keepers' Association, I did not then expect I was launching on the troubled waters of controversy; but as your correspondent seems to wish it, I have no objection to take a look at his fresh arguments.

Mr. Cowan sets out by saying, 'I do not wish to contrast my honey harvests from the moveable-comb hive with any other person's from the Stewarton.' But unfortunately for the consistency of his reasoning, *he did it*, and, to turn the scale against the Stewarton, threw in 89 lbs. of the 'watery deposit.' Next comes, 'Besides adopting several variations in the working of



Stewartons, I have also carried out strictly the instructions given by the "Renfrewshire Bee-keeper" in the *British Bee Journal*.' This sounds somewhat contradictory, if Mr. Cowan carried out strictly my instructions in working, whence the variations?

Then follows, 'Your correspondent has evidently had no experience with the extractor, or he would not call extracted honey "that watery deposit crude or extracted."' Now, although I do not pretend to possess an equal experience with the extractor as your correspondent, it so happens I have an extractor, and used the above expression advisedly. A large proportion of our Scotch honey won't extract, including the entire produce of our heath-clad hills, the sealed as well as unsealed refuses to budge. Mr. Cowan maintains, 'Extracted honey from the body of the hive is in every way equal to super honey minus the comb,' this is a position I feel sorry to be obliged to take exception to; the frames from the body of the hive contain, beside pollen and brood, sealed and unsealed honey; when the former is uncapped both descriptions of honey are thrown out together and commingle on the principle of 'the little leaven leavening the whole lump.' Whereas by the draining plan even- experienced bee-keeper keeps the unsealed watery deposit scrupulously apart; with us the latter is usually given back as feeding to bees. Last autumn all stocks were so exceptionally independent of feeding, the unsealed was allowed time to consolidate in lower strata in jars, when the watery was poured from off the top. Although I do not believe that the crude honey of the flower undergoes any chemical change in the body of the bee, nor yet in the twice swallowing- and-disgorging Pettigrewian theory, still 'evaporation' is not sufficient to remove the water crude honey contains. I am of opinion it is sucked off, or, in other words, extracted by the bee before the cell is sealed.

Many springs ago a very populous stock located in a high staircase window, and being found short of stores, it was continuously and liberally fed, which the internal warmth of the house enabled the bees to take down rapidly. While in its situation,—north aspect with a very low external temperature,—no bee durst venture abroad. One forenoon the wind suddenly chopped round to the south, the sun broke out brilliantly, and quite a cloud of my little prisoners disported themselves with great glee, and while crossing and recrossing each other's tracks emitted a thin, thread-like jet of clear fluid, doubtless the water extracted from the food: the sight of that sweetened shower is difficult to forget. Then, again, every beekeeper who knows anything of

the delicate aroma of the finest pure honey should at all times encourage its production, particularly by cottagers, in supers, to avoid unpleasant association with the cast-off habiliments of the nursery. There is a good story told by Boswell in his Tour of our Western Hebrides with his illustrious friend Johnson, that, having at no little trouble collected the ingredients for a pudding, he left them with their cottage hostess with instructions she should prepare and boil them in a clean cloth, and was horrified to find, on his return with the great lexicographer, she had used for the purpose the article which came most readily to hand, —a child's dirty night-cap! I have already endeavoured to show that perfect equality in all the parts of a bee-hive is uncalled for, that the form and arrangement most in accord with the natural procedure of the insect makes the better hive. Who but the merest novice would exchange the honey end combs with the frames of the central brood-nest? —which the form of the Stewarton happily prevents, that they fit their proper position in every hive is all that is requisite.

If, according to your correspondent, 'bees are more inclined to extend their brood chamber laterally,' why does he continuously propose to split the cluster by wedging them apart with empty combed frames set in the centre and so spread the brood? Are the bees not the better judges of what brood they safely cover? It was this, doubtless, which induced our Editor to emit his warning note so opportunely. There are bee-keepers like commercial men prone to spread their wings too far and come to grief. The wide-spread army when the cold spell comes has to fall back towards the centre, and abandon the outposts; even a small handful can at times securely defend the narrow defile: so the Stewarton with the brood compact in the centre of the cluster, the fine glow of heat emerging passes upward to keep that overhead warm.

Afford but bees the opportunity and they will soon demonstrate their predilection for concentrating their brood in the centre of the cluster, and in a downward direction. Why the very circumstance of the queen first egging the area of brood almost simultaneously either side of the central comb to economise the heat nullifies the spreading theory. For the more convenient filling of three table glasses, I last season placed three prime swarms in as many deep straw skeps. Raising them frequently off the board, I looked up to note the progress of the work; in every case the central combs were wrought down continuously, till close to the boards, before those of the sides were elongated to any extent.

I readily admit that there were 2-inch wide super bars used in the south before the Crystal Palace Show, for the very good reason there were Stewartons there previously. These bars and the admission of the honey gatherers to the supers by end openings formerly alluded to were both excellent features picked up from off the Stewarton, the stepping-stone to the oblong hive. In the following sentence your correspondent possibly alludes to one of the 'variations' he has introduced into the working of the Stewarton, which may partly account for his want of success with that hive. He says, 'For the "busy man" the Stewarton is useful, as it enables him to get some honey at the end of the season.' This, coupled with his remarks on the thickening of the cell cappings, I never had an opportunity of observing, shows how very little he knows of the anxiety with which the workers of the Stewarton watch for the supreme moment when super No. 1 is seen from the central windows to be sealed out, when off it comes, and No. 2 in the pile descends to take its place. They are thus sedulously watched to preserve their purity, and stimulate to further effect, and so on till the end of the season, and there then remains nought else on but what Beau Brummel styled 'our failures.'

Your correspondent asks why I describe the usual oblong frame-hive as 'inelastic,' and I reply because it has a fixed breeding-space,<sup>1</sup> when this becomes full, and the bees build out to avoid swarming, and thus lose the results of the season, there is no alternative but to remove the supers or sections, as the case may be, empty comb-frames substituted for full ones, queen sought for, royal cells excised possibly both in body and sections; and if thieves are attracted a free fight sets in, the whole operation in a hot, sunny, swarming day, is not enviable, which in the Stewarton is altogether avoided by simply adding as much space either below or above, to any extent, and to meet any emergency.

As to the concluding paragraph of Mr. Cowan's communication, I totally disapprove of setting down beehives on the ground, even although previously

Covered with saw-dust. On our moist west coast it is absolutely necessary to keep their contents dry by elevating at least eighteen inches above, the ground, and on their glazed tire-clay pedestals at that height they are in addition secured from becoming a rendezvous of mice, snails, earwigs, and suchlike vermin. In all my experience as a bee-keeper, I have never had a colony blown over. They are rather too solid for that, in full working order they are a good lift for the arms of a strong man. True, my apiary is well sheltered with old trees and a high garden wall immediately behind. The boards are buttoned to the pedestals, and each added box to the pile is securely lashed with stout cord from corner to corner of the weighing hooks. A bee-keeper is unworthy of the name who would keep his bees in an 'exposed' situation. If there is no hedge or other natural protection, what is to hinder him with an upright or two and a few boards to shelter them from the blast, which would soon repay the outlay?

The Octagon hive and system of bee-keeping, which has for a couple of centuries afforded 'good results,' are not slightly to be displaced from the front rank. It was the first hive, so far as I am aware, by any record which introduced the separate honey compartments! arrangement or shallow super; decidedly the first to carry sectional supers; the first bar-hive, although these were, in earlier attempts, of an improper width and fixed: these I was privileged to correct and to introduce the frame; and it is now nearly a quarter of a century since I first successfully employed the Stewarton as a hive moveable and interchangeable in all its parts; and for the last eighteen years its every frame and bar have been furnished with home-made embossed wax guides. It, therefore, did seem rather late in the day to find it described before the British Bee-keepers' Association by so well-informed and leading an apiarian as Mr. Thos. Wm. Cowan to be worthy of an 'intermediate position between the straw skep and the moveable comb-hive;' and now relegated to a position as antiquated in idea as the days of our great-grandfathers! —

A Renfrewshire Bee-keeper.

<sup>1</sup> We have no wish to interfere between two such doughty champions of truth, as they each see it from his particular stand-point, but would remark that in our longitudinal principle of hive-construction elasticity of brood-chamber is a special feature. We confess to a belief in interchangeability of frames being most helpful to bee-keepers, and would point out that, except in the shape of the frame, our longitudinal hive is in the character of a Stewarton placed horizontally, and that anything mechanical that can be done with the latter at top or bottom, can be done with the former at front or rear. A wholesome controversy between gentlemen who are in earnest can have only a beneficial result: they will doubtless discover all the weak places in each other's armour, to the edification and advantage of all bee-keepers.. — Ed.

## THE STEWARTON HIVE:

A Testimony

Vol IX #108 April 1882 page 251

I read Mr. Briscoe's letter in your Journal, in reference to Stewarton hives, and quite agree with his remarks.

At the beginning of 1881 I commenced the season badly with one Stewarton hive; imprudently, during the winter, I left on a partly finished super, into which the queen entered, and in the spring I got her majesty again into the breeding-box, I then gave an additional breeding box, and all went well. This hive yielded me about 1 cwt. of beautiful honey in white comb, but if I had commenced the season more favourably I think I should have had nearly 2 cwt. of honey.

During the summer of last year, while the very hot weather lasted, my bees in the Stewarton hive were busily at work, while the bees of the Woodbury hives were hanging out and doing nothing. Another advantage connected with the Stewarton hive is, the fact of bees wintering so well in them; I simply cover the hive over with a loose-fitting box that goes all over it, and find no dampness whatever. Those who are opposed to the much abused Stewarton system complain of the difficulty of taking the hives to pieces in order to inspect the queen; this is perfectly true, but if the object of keeping bees is, as I understand, to get a large quantity of good honey, my impression is, that the Stewarton hives are particularly adapted for that purpose.—W. R. Deykin, Edgbaston.

## BEE-STINGS AND BEE-CULTURE:

A Testimony

Vol XI #130 September 1883 pages 169-170

So much inconvenience sometimes arises from the unfortunate propensity bees have to use their stings, and the ignorant manner in which they are handled, that it is very desirable to consider, before a special form of hive is recommended or adopted, what accommodation the person intending to keep bees possesses, and whether the bees can occupy a spot some distance from the house, or whether, as is sometimes the case, they must be placed near the front door. As the extractor has been constantly at work with me this year, the bees, of course, at times have been furious, so that several persons, including my own children, have been stung severely, and though I have escaped, the sufferings of others" have caused me considerable annoyance. Going into a neighbour's garden, a young lady bee-keeper asked me to visit her hives. There was a Stewarton, with a plain wooden cover of the ordinary roof-like shape on which oil-cloth had been nailed. The bees were as quiet as could be wished, though the hive was in the flower-garden, close to the house. They had filled a large honey-box, and were fast filling another. They had sent out a swarm, and these were shown me by my lady friend, as she quietly but courageously turned up the skep in which they had been put. The honey -box and the good manners of the bees had made all the household their friends.

The results of their labours, however, could not be compared with another instance of what the Stewarton has done this year in a different neighbourhood, and

under the care of one of our most eminent bee-masters. At the end of June this stock had become so strong that they had filled three body-boxes and four honey-boxes! That is, the hive must have weighed over 100 lbs! So rapidly did the numbers increase that they sent out a swarm, so enormous in numbers that two large Pettigrew skeps were not sufficient to hold them all, and consequently they were returned to the Stewarton. For myself, I trust that this hive, enabling us, as it does, to obtain large harvests in a particular way, will not be allowed to die out. Those who don't care to extract or to meddle much with their bees may find it very useful, as its powers of construction and expansion give it infinite advantages over the straw skep, though it cannot of course be compared with the bar-framed hive for advanced bee-keeping. Something, however, might, in my opinion, be done to improve its present form, and it seems a pity that Mr. Allan, of Stewarton, N.B., who is almost the only maker of this hive, does not add a few improvements. The one he exhibited under Mr. Blow's name at Knightsbridge had no frames, and, I think, no provision for foundation-comb at either end. Content with four frames in the centre, he had left the sides to shift for themselves. The cover was a grand piece of work, but far too grand for ordinary mortals.

A plain cheap top should always be sent out with the body and honey-boxes, but I doubt whether it ever is. The outside boxes which some recommend do not seem necessary, though special protection in very severe weather—such as might be given by means of hay or straw bands—should certainly be added. For persons, then, who don't care to irritate their bees by extracting', or by constantly removing sections, while at

the same time they like, or are compelled, to have their little friends close at hand, the Stewarton seems to me a very serviceable hive, and I hope it will continue to have a place of its own in the bee kingdom, just as the straw skep and the bar-framed hive.—A Country Parson.

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## EXPERIENCE WITH A STEWARTON HIVE.

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Finding one of my Stewarton hives very busy this morning, when the other hives were comparatively quiet, I deemed it well to examine it, and see if the bees required food, or other attention. I was glad to observe that the combs contained an ample supply of sealed stores, and upon taking out the two central frames, was pleased and almost surprised to find them *quite full* of brood in all stages; many newly-hatched bees were running over the combs, and the queen appeared to be in good laying condition. This hive, and some of the

others, contained so much sealed pollen in the autumn, that I rather feared that it might prove detrimental to the future welfare of the colony; but it has been most useful, by enabling the bees to raise a large quantity of brood, at a season when they have been unable to obtain any supplies from outside, and the combs will now be in excellent condition for the reception of eggs in the ensuing spring. None of my hives have been fed, or in any way interfered with, since October.—

J. E. Briscoe, Albrighton, Wolverhampton, Jan. 30.